GAS

ENGINEERING • UTILIZATION • LOAD-BUILDING • MANAGEMENT

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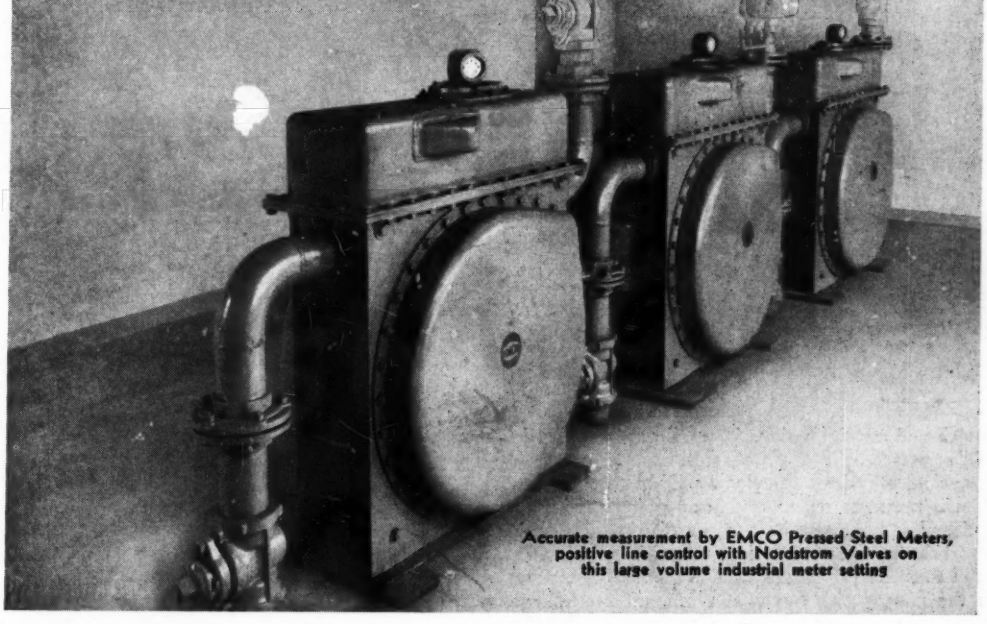
EMCO PRESSED STEEL METERS

THE BEST METER IN THE END BECAUSE IT'S MORE METER TO BEGIN WITH!



Accurate measurement by EMCO Pressed Steel Meters, positive line control with Nordstrom Valves on this large volume industrial meter setting

FROM the hundreds of gas utilities, who for years have been relying upon EMCO Pressed Steel Meters for accurate, dependable measurement, have been received many expressions concerning their reliability and satisfactory operation. We quote the following paragraphs from a recent statement made by a well known superintendent of gas distribution and regulation in New York state.

"Taking into consideration all of the variables of metering service, we have had very fine success with our EMCO No. 4½ and No. 5 Meters. Tests, following reconditioning, usually show perfect results.

"It is very interesting to note the small error in EMCO Pressed Steel Meters after passing large volumes of gas. For example, two of these meters passed 180 million cubic feet, each at 10 pounds pressure under severe turn-on and turn-off conditions. One of these meters was found to be ½% slow and another ½% fast.

"An approximate estimate of the volume passed per EMCO Pressed Steel Meter in our system would be about 2 million cubic feet per month, per meter. Our repair costs and service costs for our large capacity meters are exceedingly small in comparison to the large quantity of gas metered."

Expressions such as these prove that the EMCO Pressed Steel Meter is the best meter in the end because it's more meter to begin with.

To Aid in Keeping 'Em Measuring

THIS 80-page manual, profusely illustrated, tells the approved methods for renewing the life of all EMCO and Ironclad Meters. Factory designed jigs and tools described therein can be secured that will simplify repair procedure and assure an accurately fitted job even with inexperienced labor.

Meter Shop Foremen, Distribution Superintendents and Measurement Engineers are invited to write for this Repair and Maintenance Manual as well as for up-to-date parts lists for all EMCO products.

Write for this Manual

PITTSBURGH EQUITABLE METER COMPANY

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MERCO NORDSTROM VALVE COMPANY
Main Offices, Pittsburgh, Pa. 7

LOS ANGELES, MEMPHIS, NEW YORK, PITTSBURGH, SAN FRANCISCO, SEATTLE, TULSA

NATIONAL METER DIVISION, Brooklyn, N. Y.

EMCO METERS AND REGULATORS

Rolling the rough seamless tube, which has just come from the piercing mill, in order to change thickness into length in relation to certain wall thickness. This is accomplished by rolling, in two or more passes, through grooved rolls over a plug held in the roll groove on a mandrel. Thus, the short, rough tube is converted into a longer tube with a thickness reduced to the gauge desired.

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Seamless means uniform wall strength

THE strength and stamina unique in seamless pipe and tubes are the direct result of the high-quality steel required to successfully withstand the seamless process. Piercing a solid billet of steel to form the basic tube is the most severe test in any pipe-making process. That's why Seamless has proved so successful wherever equipment must withstand shock, vibration, fatigue or rough handling.

Further, the seamless process is the one method of making pipe that affords the most positive assurance of *uniform* wall strength from end to end. There are no welds—no longitudinal lines of weakness. No other method of pipe manufacture, however ingeniously employed, can achieve with invariable certainty, the homogeneous structure of a solid forging.

Seamless provides the extra margin of safety so necessary in pipe lines. NATIONAL Seamless Pipe is identified by the emblem "Walls Without Welds."

NATIONAL TUBE COMPANY
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UNITED STATES STEEL

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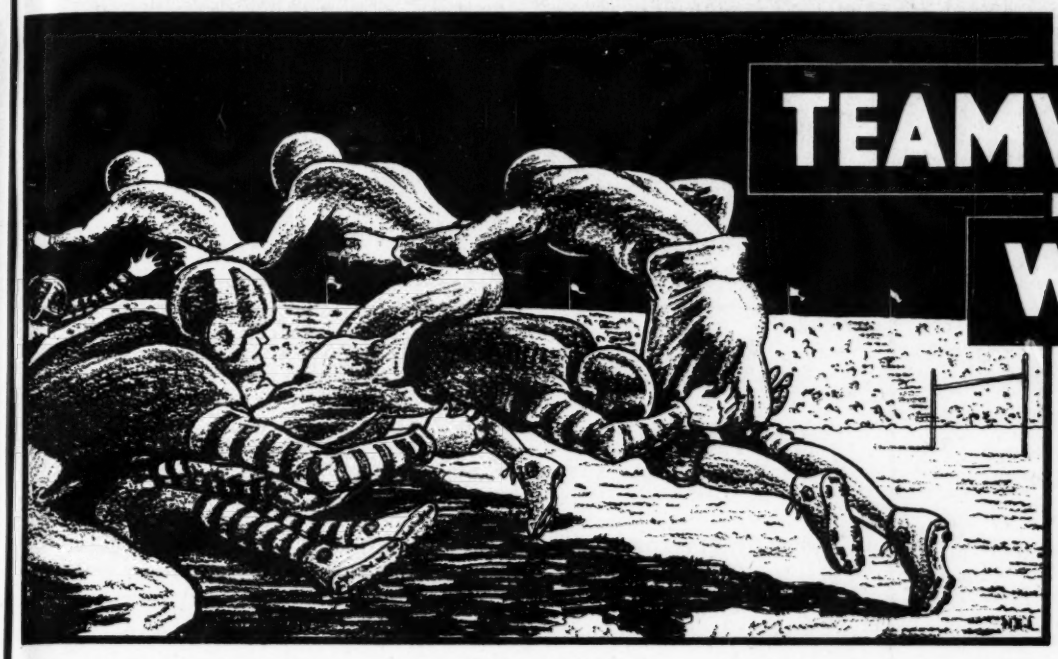

TEAMWORK WINS

In football it's teamwork—everyone pulling together—that wins the games. There is teamwork in this gas business, too. Take, for example, MUELLER Pressure Control Fittings and MUELLER Drilling Machines. Here are a couple of inseparable team mates that go a long way in helping you overcome many of your problems.

If you want to extend dead-end lines, make lateral extensions, replace old sections of a main, or do any kind of repair work, either regular or emergency, here are the tools with which to do it. With MUELLER Pressure Control Fittings you can isolate a section of the line, obtain a positive shut-off, and make necessary repairs or replacements, all with absolute safety and without shutting down the line. In addition, the fittings are installed at the exact spot desired regardless of the location of the gate valves in the line.

The "C-1" Drilling Machine shown is a husky team mate for MUELLER Fittings. With the air motor attached it literally eats its way through pipe. A more common use is making lateral connections by drilling through gate valves attached to nipples welded onto the main. Has both automatic and hand feed. Easily operated.

These and many additional features provide economies in time, manpower, and money not possible with slow, old-fashioned hand methods. If you are not acquainted with what Mueller Pressure Control Equipment can do for you write Dept. G-41 now for complete information.

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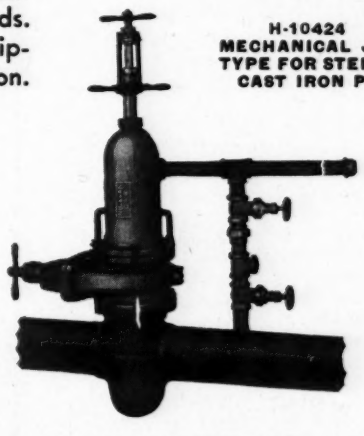
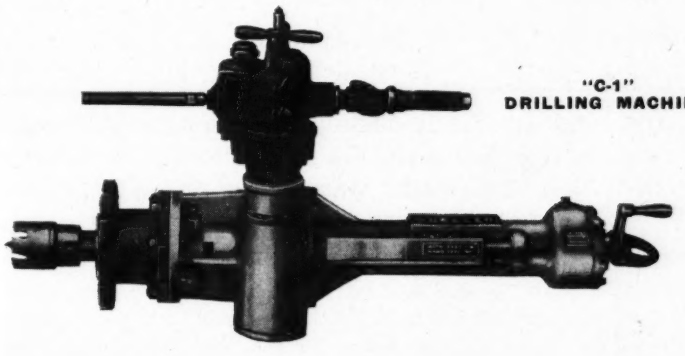
TYPE FOR STEEL OR
CAST IRON PIPE



H-10420 PLUGGING UNIT



"C-1"
DRILLING MACHINE

Buy War Bonds

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DECATUR, ILLINOIS

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Nineteenth Year of Publication

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GUEST EDITORIAL

Opportunities and Hurdles in Home Service

By JESSIE McQUEEN

Home Service Counselor, American Gas Association

AS A home service representative, I could contribute no better editorial than to quote with pride the commendatory references to home service made by the president and president-elect of the American Gas Association in their addresses at the recent annual meeting of the association.

"Whether due to foresight or good fortune, the gas industry is to be congratulated in having its home service department well established and functioning when war started," Mr. Bridge declared in his president's address. "Certainly no other representatives of the industry have contributed more to community life and national welfare under wartime conditions. With many of our normal avenues of customer contact interrupted, they have been missionaries of goodwill through essential service and information furnished to the public, and cooperation with many local and national organizations. Their work has done much to promote acceptance of our industry as an institution which provides an important public service. . . . Twelve million customer contacts in one year by our home service personnel is a record which tells its own story. It is a record of which we are proud. Keep up the good work."

Mr. Acker in his address, "The Gas Industry at War," mentioned the outstanding service of the gas industry to the war program through the active participation in government-sponsored activities of conservation of fuels and foods and for the selection, preservation and preparation of food providing improved nutrition in homes and industries. "The work of the home service departments in these and many other activities," he said, "represents one of the greatest contributions of the industry to the furtherance of the war effort."

"Keep up the good work," Mr. Bridge's admonition, is being met in plans for 1944. And there are opportunities—and hurdles, too—in this picture. For example, transportation problems as they affect home call opportunities and variation in customer attendance at demonstrations is a factor. So, also, are demonstration changes to keep up to date on the effect of food shortages and their substitutions in recipes and meal planning, the time consumed as well in securing rationed supplies for demonstrations and reduced demonstration personnel, all of which open up a need for visual aids in charts and films and slides for war-time demonstrations. At the same time, there is need for work simplification ideas for maidless homes and where the homemaker works in a defense plant; the placing of greater emphasis in instruction to young people as the ones who are doing today's buying of rationed foods and their preparation at home; the continued need for nutrition information presented simply and attractively as basic foods become scarce, and the promotion of an attitude of "How to be happy though rationed."

In the field of food preservation there is the need to survey the trials and experience of 1943 and to set up good standards for judging and methods; the importance of explaining the care and use of present equipment in every demonstration and particularly in the home calls, the revival of which is felt by a growing number of companies to be more important now than ever—home calls for new users of gas, for new equipment and repair follow-up, and for fuel and equipment conservation surveys.

This picture of immediate opportunities has been outlined in detail to show the variety of openings for home service work this next year.

And what of postwar? Our leaders are planning postwar equipment—postwar merchandising plans—postwar advertising—postwar industry relations, so there is also postwar home service. Not a one of us but is looking forward to days when equipment is again available to challenge the ever-active ingenuity of home service in its dramatic presentation to sight-minded women who picture the new models as they will appear in their own kitchens—the new work-saving kitchens which become a desirable asset in the mind's eye of the woman who has seen more of her kitchen during the war period than ever before.

In the many new friends won for the gas companies through the cooperation of home service in wartime programs, the ready-made demonstration experience and home economics training which qualifies home service personnel for nutrition instructors, the postwar possibilities growing out of this community experience are without measure.

ENEMY AGENT

on the Production Front!

Don't let dust interrupt continuous service

Gas is the perfect fuel for heat treating so vital to the production of armament. But it must be clean to assure constant delivery and easy control. Blaw-Knox gas cleaners do the job efficiently—prevent "Old Dusty" from slowing up the job, retarding Victory!

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Now available on AA5 Priority or better. Blaw-Knox Gas Cleaners — *as low as* **$95**

Write for complete details on the ideal low cost "K" series Gas Cleaner for your use. Available in two sizes and three weights for installation in front of industrial meters, at district regulator stations, small city gate stations, etc. State where to be placed, maximum gas volume MCF hour, the minimum and maximum pressure.

BLAW-KNOX GAS CLEANERS

THERMALLY THINKING

By ELLIOTT TAYLOR

Washington Editor

Advertising

HAVING had our little say on the matter of AGA advertising, and having recommended to the industry that it give favorable consideration to the suggestions made at St. Louis by Frank Smith, president of the Houston Natural Gas Company of ways and means to raise a $4,000,000 fund to put gas in the national advertising picture (*Gas*, Nov., 1943, p. 21), we now find that counsels for the American Gas Association and the Association of Gas Appliance and Equipment Manufacturers have conferred on the matter and are of the opinion that the suggestions would be in violation of the anti-trust laws. Period!

Maybe if we just clap our hands the dough will come floating in without the legal talent moving a finger.

Legislative Threats

BOTH Senate and House have taken up proposals of concern to natural gas operators during the last 30 days. One of these is Senate Bill 1530, designed to centralize the administration of all the functions relating to "the production, transportation, distribution, sale and price of petroleum, natural gas and coal" that are now distributed among various war agencies. Categorically these agencies, whose functions respecting the commodities mentioned would be taken over by the PAW are: Office of War Mobilization, Office of Economic Stabilization, War Production Board, Office of Price Administration, Office of Defense Transportation and the Natural Gas War Labor Board.

Had this bill been introduced a year ago, when Holley Poe was head of the natural gas and natural gasoline division of PAW, and before Paul Taylor had taken over as director of the natural gas division of WPB's OWU, we should have felt constrained to support it, and to urge upon Congress the advisability of its adoption. But now it is in our opinion no longer necessary to disturb the divided jurisdiction over the industry that is presently exercised by OWU and PAW. Each agency is functioning well within the framework of its delegated authority, the natural gas industry is getting every reasonable consideration from both OWU and PAW, and it is in the fortunate position of having two powerful friends in court instead of one.

This bill probably just is a shot in the dark, and it is unlikely that it will ever be reported out of committee. But certainly any piece of proposed legislation so intimately identified with natural gas deserves careful study on the part of the industry, and when and if hearings are ever held on it by the Committee on Interstate Commerce to which it has been referred, there must be a positive statement of a unified industry attitude toward its provisions.

Other legislative interest is evidenced in the Overton resolution, introduced as a joint resolution by Senator Overton of Louisiana and Representative Mansfield of Texas. It is for the avowed purpose of "directing the Federal Power Commission to inquire into and report to Congress on various matters with respect to natural gas."

The various matters referred to are: a complete study of the extent, location and rate of depletion of reserves, and "the nature, amount and location of the present and anticipated utilization of natural gas, the resultant economic waste and undesirable competition with and displacement of other fuels, and the feasibility of converting natural gas and its constituent hydrocarbons for chemical and other superior uses." This information, in the words of the resolution, is to assist Congress "in determining what additional legislation, if any, should be enacted for the purpose of restricting unnecessary waste or depletion of natural gas reserves or the utilization of natural gas for inferior or otherwise undesirable purposes in competition with other fuels."

This resolution is also referred to the Committee on Interstate Commerce, and while it has not yet been considered there is good reason to believe that it may be reported out favorably at an early date.

To the ordinary observer this looks very much like the product of an unholy union of the FPC, congressmen from natural gas states and the eastern coal interests who labor diligently and with complete disregard for national welfare to block the expansion of natural gas into any new territory.

It will be recalled that when the Tennessee Gas & Transmission line from Texas to West Virginia was up for certification of public convenience and necessity, the delaying tactics of the FPC became so alarming that OWU found it necessary to practically kick the commission into making a decision so that the proposed line would be ready for service by the winter of 1944-45. And then to forestall any more maneuvers of this kind that might prove detrimental to the war effort, a sort of concordat was signed by Leland Olds, the FPC chairman, and Donald Nelson, head of WPB, outlining the limits of the jurisdictions of the two organizations. Under this agreement WPB took complete charge and responsibility for saying when and where new or expanded gas facilities would be permitted in the interests of essential war production. FPC hasn't been happy about this relegation to second place in gas utility matters for the duration, and probably would welcome the opportunity to delve into industry affairs as a face saver.

Whether or not the resolution was inspired by the coal lobby, it is certain that the language employed in its presentation would be completely agreeable to its members and backers—the "resultant economic waste and undesirable competition with and displacement of other fuels" is right up their alley. Just what sort of competition is desirable and what is undesirable, from a legislative standpoint, is a question that has never been settled to the satisfaction of all parties, but the FPC can no doubt evolve a formula that will clear up this moot question for all time.

The interests of the elected representatives from the natural gas states in the matter has its genesis in the movement, spearheaded by the state of Texas, to attempt to limit the export of natural gas beyond state boundaries, with the very understandable hope that if gas can't go to industry, perhaps industry will travel into the states that have the gas.

Twenty years ago West Virginia had a similar ambition, and passed a bill which laid a severance tax on natural

gas exported out of the state. The idea was good from the West Virginia viewpoint, but unfortunately it was declared unconstitutional. If the state of Texas can, with congressional backing, set a limit on the amount of natural gas that can be exported beyond its state line it might be interesting to investigate the possibility of setting similar limitations on the export or transportation of indigenous products from other states of the union. Hard coal, for example, might all be reserved for the exclusive use of Pennsylvania; the consumption of all citrus fruits become a full-time occupation of the inhabitants of California and Florida.

The Overton resolution is comparatively innocuous as it now stands. In the first place, the appropriation of $30,000 proposed to enable the FPC to carry on this monumental undertaking would be wholly inadequate. In the survey that the industry committee of PAW made of the natural gas reserves last year, approximately 2600 gas pools were investigated in District 3 alone, and the expenditure in terms of salaries paid by the companies cooperating to their own engineers and geologists, plus other incidental expenses, would probably run well over half a million dollars.

With the idea of a continuous and competent inventory of the natural gas resources of the nation we have no quarrel. Over a period of years we have urged that the natural gas industry should undertake and maintain such composite estimates. And certainly we are heartily in favor of the most economical utilization of all our natural fuel resources, be they gas, oil, coal or electricity. But we are not in accord with the methods adopted by the backers of Senator Overton and Congressman Mansfield of Texas to throw the whole fuel policy of the nation into the political maw of the FPC with the very resolution itself couched in a biased phraseology that anticipates foregone conclusions.

Here again is a congressional matter that should be the subject of a statement on the part of the natural gas industry, with industry advice and industry data available to a committee of the Senate that will determine its disposition.

Industry Representation

CONTENTIONS of natural gas executives that the industry is badly in need of a representation in Washington that is devoted solely to the interests of the natural gas industry are daily gaining momentum as the result of activities in the nation's capital that not only affect the immediate welfare of natural gas interests but hold either promise or threat of far-reaching consequences in the future.

By the time these words appear in print we anticipate that Congress will have passed the new tax bill which will contain a provision granting natural gas producing companies a measure of relief from the stringent measures of the excess profits tax. While the benefits to be realized from this relief will be far-reaching and will extend through the entire industry, it must be stated that a small group of mid-continent natural gas executives were responsible in both initiative and persistence for the successful presentation to the Ways and Means Committee of the House of the industry's case.

We are informed by one of the responsible leaders in this fight for equity at the hands of Congress that an early appeal to the American Gas Association for public support and backing was turned down by that organization. It is not within our province to question the judgment of that venerable institution, but we do submit that if matters of such moment to the natural gas industry are outside the scope of the association's activities, then natural gas needs at least an auxiliary organization of some kind to look after all of the phases of its community interests.

Industry representation in Washington today is as different from the old style lobbying of yesterday as Thomas E. Dewey is different from Warren G. Harding. And the political hack of the old school who got favors for his clients by entertaining congressmen at beer busts and clambakes has been supplanted by the economist, the statistician and the technical expert on matters affecting the industry that he represents. To these men are entrusted the details of surveying the Washington scene, supplying authentic information to governmental bodies who are in search of the facts, presenting petitions for relief from inadvertent injustices and most important of all, anticipating and forestalling any ill-advised move on the part of Congress or the transient war authorities that might work unnecessary hardships into the pattern of industry operation.

Had such a representative or such an office been functioning in Washington at the time the Revenue Act of 1942 was being drafted, it is conceivable that time and effort and expense incurred by important natural gas officials could have been saved. The exceptions from excess profits tax liability provided for timber and mining — both of which activities are similar to the production of natural gas in that finite and irreplaceable reserves are being depleted by wartime demands—could just as well have been extended to embrace natural gas if somebody had been on hand to present the industry's case.

Letter No. 3 of U-7

IF ANY criticism is due the Office of War Utilities, it is likely that of trying to do too good a job. A case in point is Administrative Letter No. 3, following up on the recently issued U-7 (formerly L-31). This letter approves deliveries of natural gas upon certain specified conditions to non-residential consumers formerly restricted under the order.

For example, utilities in areas listed on Exhibit B of U-7 can now make non-residential deliveries, (1) if aggregate input of gas-fired equipment on the premises is less than 500,000 Btu. per hour; (2) if equipment is not primarily used for space heating; (3) if the equipment cannot utilize fuel other than natural gas or LP-gases; (4) if it does not replace equipment using fuels other than natural gas; (5) if converted, the equipment conversion was completed before Nov. 1, 1943, on premises where natural gas deliveries had not been previously prohibited.

The letter was designed to simplify operations, but the catch comes in the final paragraph, for therein is provided that every new delivery authorized by the letter must be formally chronicled on Form WPB-3314 executed by consumer and supplier.

The effect will be to boost the load of forms by the hundreds per week, involving more field work, more men, more paper work, more fuss, more bother. And new forms must be used, meaning that new procedures must be set up, more paper used in printing the new forms, paper discarded in tossing out the forms formerly used under L-31.

Such an order on the part of WPB might be condoned if the new filings could possibly serve any useful purpose, but with every utility in the country sending in bales of forms, each telling the complete tale of some minor turn-on or turn-off, it would probably necessitate the recall of a division from Italy to furnish the manpower to compile the statistics for some unknown purpose.

NEWS NOTES AND COMMENTS

Three-Way Fuel Battle

The *New York Journal of Commerce* gives out with the opinion that there will be a three-way clash among fuels for top position in the post-war era: coal has the brightest future, with natural gas expanding, and oil no longer a menace.

Conservation Note

The gas industry has saved $17,000,000 worth of scarce materials since 1940 through rigid reductions in use for maintenance, repair and operation, according to figures released by the Office of War Utilities.

1944 Appliance Production

WPB is expected to issue an order giving permission for the production in 1944 of 64,000 domestic electric ranges of the three-burner apartment house type. Production will be placed in areas where facilities and labor are available. Also on WPB's 1944 home consumption production schedule are 2,000,000 electric irons, 900,000 washing machines, 900,000 refrigerators.

The beginning of reconversion is seen in the fact that there is considerable scrap metal not acceptable for airplanes and no longer needed for other war products. This will gradually be diverted to producers of peacetime products.

Range of the Future

According to an article in the *Wall Street Journal*, the range of the future is already in production. It is a ceramic cooking range and will be ready for the market by early 1944. The article fails to disclose the name of the manufacturer or the fuel burned.

While manufacturers are not talking about future designs, it was brought out that experiments in production have been made using glass, tile, plastics, porcelain, gypsum, and even plywood. Since no information of a definite nature has come from any range manufacturer, it must for all practical purposes be assumed that the gas range of the future has yet to descend from the world of dreams.

Figures released by the U. S. Chamber of Commerce as of mid-1943 reveal that post-war buying intentions in the home appliance field have soared from $860,185,000 in Dec., 1942, to $1,215,910,000 at the time of the check. A new home is on the want list of 1,540,000 families.

That competition for this market will be intense is a foregone conclusion. Something should be done about bringing the gas range of the future down from the hazy clouds of post-war promises.

Cribben & Sexton Converts

Cribben & Sexton Co., Chicago, is the first of the class A range manufacturers to swing back into gas appliance production. With reconversion of a portion of the plant practically completed, the company expects to make deliveries some time in January. The range being produced is known as Model 4301 and is permitted under WPB restrictions.

The model will have four top burners, oven and broiler in compact vertical position (see cut). Features are:

1. One giant and three standard self-lighting top burners.
2. 16-in. porcelain-lined precision bake oven, 19 in. deep.
3. Porcelain thriftop with four round removable porcelain cast iron thrift-grates.
4. Porcelain smokeless broiler pan.
5. In-a-drawer broiler with drop front section—insulated.
6. Oven insulated with blanket "supertherm" insulation. Insulation extends clear around oven top, back and side walls.
7. Precision high speed low temperature oven burner.
8. Porcelain drip tray.
9. One oven extension rack.
10. Rigid steel construction.
11. Full porcelain enamel.

Rumor has it that American Stove and Geo. D. Roper will also soon be producing a permitted model.

Cribben & Sexton permitted model.

Ranneywells

Time for Dec. 6, page 64, carries an article about Leo Ranney, who has completed the first steps in adapting his method of horizontal well drilling to oil production. (*GAS*, Aug., 1942, page 31.)

Ranney's oil mine, as *Time* calls it, is located at Franklin, Pa., and consists of a vertical, concrete shaft sunk to oil level, with a chamber at the bottom from which holes are bored horizontally into the oil sands. Flow of oil is started by explosives.

Average production rate of Pennsylvania wells is now less than half a barrel a day. Ranney expects to produce more than 120 bbl. per day from the experimental well at Franklin.

Ranney has drilled a number of horizontal water wells in foreign countries and for U. S. industries. The method is also used to produce gas. A Ranneywell at Sydney, Australia, now yields 1,500,000 cu. ft. per day.

It is quite possible that Ranney's drilling methods will give the curve of the nation's petroleum and gas reserves a sharp upward tilt.

Gas and Rubber

Enough natural gas reserves are available to plains plant (which began operation near Borger recently) to permit the manufacture during the next 35 years of much more rubber material than has been imported into the United States during the last 100 years. The plant, designed and built by Phillips Petroleum Co. to utilize its own patented processes, promises to produce enough butadiene to make 11,000,000 automobile tires annually.

Electric Statistics

FPC has published the sixth edition of its annual report, "Statistics of Electric Utilities in the United States," which presents for the year ending December 31, 1942, detailed financial and operating information on the 359 major privately-owned electric utilities in the country. With total assets aggregating $18,009,963,065 at the end of 1942, these utilities represent in excess of 95% of the entire privately-owned electric utility industry in the nation on the basis of either assets or revenues.

1942 edition also contains, for the first time, composite financial statements of the companies for the years 1937 through 1942. These composite

statements have been summarized in a 10-page report issued November 14 entitled "The Financial Record of the Electric Utility Industry, 1937-1942." This is a factual statement showing the financial progress of the industry since the institution of uniform accounting and other controls.

This five-year review reveals a notable strengthening of the electric industry, providing greater protection for investors in utility securities and greater ability to provide consumers with increased service at lower costs. The record shows that:

1. Generating capacity has increased 17% and electric sales 52%, with an increase of only 7% in gross plant investment.

2. More than $200,000,000 of inflation was eliminated from the utility plant accounts.

3. Depreciation reserves have been built up by more than 50%.

4. In spite of increased operation expenses and taxes, net earnings available for investors have been steadily maintained.

5. Outstanding indebtedness has decreased and the ratio of long term debt to gross investment in utility plant has fallen from 50% to approximately 45%.

6. Interest charges which were covered 2.97 times in 1937 were covered 3.22 times in 1942.

7. Earned surplus has been substantially increased.

8. Average yield on all grades of electric utility bonds fell from 4.03% in 1937 to 3.07 in 1942.

9. More than $2,000,000,000, representing accruals for depreciation and amortization, together with the balance of earnings after payment of dividends, were in effect retained in the industry during the period.

10. As a consequence, for the industry as a whole, facilities were greatly expanded without necessity for the issuance of additional securities to finance construction.

Copies of the 10-page report entitled "The Financial Record of the Electric Utility Industry" are available from the commission free upon request. Copies of the 500-page 1942 edition of "Statistics of Electric Utilities in the United States," which is bound in blue cloth, and may be referred to as "FPC S-30," are not available for free distribution but are sold by the Federal Power Commission at $2.00 a copy. Remittance should accompany order and be in the form of check or money order payable to the Treasurer of the United States. Stamps are not acceptable.

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BRIEFS OF WASHINGTON ORDERS

• Supplementary Utilities Order U-1-h allows gas extensions to premises built or remodeled under L-41 as well as to those used for war purposes and by government agencies.

• The Department of Labor, Wage and Hour Division, held a hearing on the recommendation of Industry Committee No. 69 that an hourly wage of not less than 40¢ be paid by employers in the communication, utilities, and miscellaneous transportation industries as defined in Administrative Order No. 221.

• An interpretation of Regional Bulletin 9A-6 allows dealers and distributors to stock and sell combination ranges (those using two fuels for either cooking or heating, or one fuel through separate burners for cooking and heating) upon proof to ration boards that such stoves are normally stocked, that stocks do not include a reasonable proportion of such ranges.

• OPA on Nov. 15 increased allowable range inventories to dealers and distributors in five regions — New England, Southeastern, South Central, Mid-western, Rocky Mountain states. Increases were granted in Region 8, the far west, Nov. 8.

• WPB GPO M-43 relaxes restrictions on the tin content of solder. Use of tin in solder for the repair of gas meters in accordance with Supplementary Order M-43-b, as amended—not more than 38% by weight.

• Gas-fired, low-pressure heating boilers are brought under simplification restrictions of Schedule 3 of Order L-42, WPB announces, thus prohibiting fusible plugs, tri-cocks and metal jackets (except for gas-fired burner boiler units necessary as a functional part of the boiler) for low pressure heating boilers fired by gas fuel, as well as solid or liquid fuel. WPB-4639.

• The recent 9% increase authorized in manufacturers' sales of steel warm-air and cast-iron furnaces applies only to the furnace proper and does not apply to any auxiliary equipment, OPA said Dec. 2. The manufacturer may increase his lowest list price on a complete furnace oil-burner unit, a stoker-furnace unit or a gas-furnace unit only on the selling price of the furnace itself (including casing and grates) even though his price sheet lists ceiling prices on the complete unit.

• Permission to produce 64,000 domestic electric ranges of the three-burner apartment house type in 1944 is expected to be granted to manufacturers in areas where labor and facilities are available, the WPB announced Dec. 1. An order setting forth the regulations governing such production will probably be issued at an early date.

The ranges will be produced under a special emergency program designed to meet the most essential needs of the armed services, hospitals, and Federal Public Housing Authority and Federal Housing Administration public housing projects and to provide essential replacements for civilians who have been or are now using electric ranges.

Production at the rate of a maximum of 16,000 electric ranges per quarter would be about 10% of the 1941 production rate. This number of ranges will not satisfy all the demands built up as a result of the long discontinuance of production and virtual disappearance of inventories, but it is expected to take care both of essential war needs and of essential replacement demands in cases where existing electric ranges are beyond repair or have been moved to another location.

A manufacturer's eligibility to participate in the emergency program will be dependent upon his ability to produce electric ranges with a minimum drain on facilities and manpower needed for direct war work. Consequently, only a small proportion of the 24 former electric range manufacturers will be authorized to produce ranges under this plan.

• Delivery of natural gas for space heating to residential customers in the District of Columbia not already receiving gas service was recently prohibited by the war production board.

The action was taken in a revision of Order U-7 by adding the District to the critical gas areas listed in the order. The only other additions were a few scattered counties in states already affected.

Gas delivered to residential consumers in the District is a mixture of natural and manufactured gas, so that Order U-7 applies. The reason for the ruling is that natural gas for the District is obtained from the Appalachian area, which faces a shortage this winter.

Under the order, gas can be delivered for space heating to District consumers who were using it for that purpose on premises where equipment had been installed prior to December 2, 1942, or, in the case of new construction, if gas equipment was installed prior to March 1, 1943. Delivery of gas also may be authorized by WPB.

A Manufacturer Speaks

Last month Payne Furnace & Supply Co. was awarded the Army-Navy "E." Among the congratulations came the question:

"When are you going to deliver some furnaces and parts?"

E. L. Payne, vice president and general manager, replies in an open letter giving a few facts regarding the firm's present position and the plans that are now being made to get back into gas appliance production after the war.

"It's hard to turn down orders from our old and valued friends. Yet, when Uncle Sam is pleased with our war work, and keeps asking us to do more of it, we feel pretty good about the help we're giving our fighting men. And we know that you prefer it that way.

"This does not mean we've forgotten our friends in the gas business, our distributors and dealers or Payne owners. Far from it! In so far as possible, under war conditions, we are taking care of emergency repair and replacement needs from pre-war stocks; and right now we're planning even finer, more efficient post-war models. We'll be better equipped than ever to produce them, too!

"Our plant facilities have been greatly expanded. We have new machinery; additional engineering talent and experience; knowledge of the latest metallurgical developments, including the use of lightweight, rust-resistant metals and alloys—all the advanced techniques of design and production developed under the urgency of war."

The Past, Present and Future of GAS INDUSTRY RESEARCH

By MARCY L. SPERRY

President, Washington Gas Light Co., Washington, D. C.

THE desire for research springs from a normal healthy dissatisfaction with things as they are. Fundamental research is the endeavor to find new and better basic ways of doing things. Applied research is translating the results of fundamental research into practical use.

While giving careful, intelligent attention to research of today and tomorrow—in order to envisage this subject in its broad aspects—let us briefly remember from past records the extent to which our industry has advanced in the last 25 years because of the organized research which it has done itself, as well as that done by our member companies, individually.

The research which has been done under the sponsorship of the American Gas Association has been governed by the needs of the industry as a whole, and the selection of the individual research projects is related to such needs. The association's activities have been in the several fields of production, transmission, distribution and utilization. The results of this research have been used extensively throughout the industry. The list is long, covering coal carbonization, the control of gummy deposits, the mixing of different gases, studies of soil corrosion and protective pipe coating, natural gas well deliveries and pipe line flow, to mention but a few of such projects.

PRESENT PROGRAM

Of our past research accomplishments we are proud but with due regard for the value of history, let us now look at our association's present research program which is an extensive one. Some may deem it too extensive, others too meager. The position of our industry, one year or 10 years from now, will record the answer.

Production and Distribution: In the fields of production and distribution, our research engineers are continuing their earlier work on the removal of organic sulphur compounds from gas, and microbiological anerobic corrosion, as it affects pipe protection, is being investigated. Mixed gas research, particularly as applied to high Btu. mixtures, is being further studied. Methods of controlling and gauging combination oil and gas wells to prevent extensive gas waste are under investigation, as well as studies of the formation and effect of hydrocarbon hydrates, particularly as they affect the freezing of natural gas lines. All of these projects involve matters which are fundamental to our business, being directed toward the solution of problems of long standing.

Utilization—General: It is in the field of gas utilization that we come directly into intensive competition for the customer's dollar by other fuels and sources of energy. This competition was becoming of large importance before this era of necessary war production board limitation orders. When such orders are no longer in effect, the old competitive problems of past years will then seem to us as child's play. Therefore, without minimizing the necessity and importance of other research investigations, it does appear sound to place all emphasis possible, in our research, on advancing and improving methods of gas utilization.

The utilization of heat energy in American homes, places of business and in industrial establishments covers a vast market of greatly different characteristics. The local problems requiring research in varying degrees are innumerable. Obviously it is impracticable for this association or any other single body to be the sole research agency. Your association, therefore, in its present research plans, is to the best of its ability selecting projects of value to the entire industry and those which would probably not be undertaken by individual members, the selections being made only after careful study by committees thoroughly representative of our industry.

Utilization — Industrial and Commercial: The utilization of heat energy in the industrial and commercial field involves many separate and distinct uses of gas which differ from each other in the task to be performed, the equipment used, and in the processes applied. No matter whether market trends are unfavorable, or the reverse, organized research enables us to develop answers which permit us to improve the marketability of gas.

To illustrate. Included in the 48 industrial and commercial research projects, which have been sponsored by the association in the last 10 years, was one which finally resulted in the development of radiant tube and enameling furnaces, and enabled our industry to increase greatly its sale of gas for use in such furnaces when the tendency was for such sales to decrease. Further, the successful development of the equipment used and the technique required for direct firing in high temperature bisque applications, in the clay products division of ceramics, has made available another great opportunity for the use of gas that otherwise would not exist.

Industrial gas research progress seems to be as rapid as the evolution of American technology! Thus was the industry able to meet the challenge of the Axis powers. New industrial gas processes and arts, springing from research and occasioned by the war were developed and applied—almost overnight. Gas heat treating of aluminum, magnesium and of innumerable other novel applications introduced because of the requirements of our armed forces are the products of such research.

Utilization — Summer Air Conditioning: The research sponsored by the association has been an important factor in the development and improvement of gas air conditioning equipment in the comfort field. The manufacturers of such equipment, and those in charge of research investigation in this field, are working closely together and thus have traveled through the long, hard initial period of exploration and investigation with such success that when normal manufacturing and selling may again be undertaken, the industry has every expectation of successfully serving many customers with summer air conditioning.

Utilization—Domestic Cooking: With respect to the research work being done in the domestic cooking field, in which there is so much interest, it

PRESENTED BEFORE the General Sessions at the 25th Annual Meeting of the American Gas Association, St. Louis, Mo., Oct., 1943.

includes oven heat distribution to secure more perfect baking and economy of operation; the investigation of oven heat losses by conduction and radiation, both through the flues and around doors; seration, adequacy of controls, etc. Research on broilers includes studies of changing input rates; effect of various types of flames; studies of the effect of temperatures on broiling, all to secure the perfect broiling device. Pre-heating time has been studied and ways for improvement developed. The subject of smokeless broiling, seration and ventilation have all been studied and are, likewise, receiving careful attention.

Automatic ignition research, not only for top burners but also for ovens and broilers, is now well under way and some entirely original engineering data have just been released, which can well serve as the basis for further improvement in flash tube ignition and the elimination of separate pilots.

Range top sections have received close study and ways have been indicated for increasing efficiencies. Valuable studies have been completed on the effect of varied input rates on top section performance and the effect of varied input rates on utensils of varying sizes. Speed of cooking is receiving the close attention it deserves.

Studies of range burner design and performance have been completed and reported on, and for the first time, we now have a complete study, recently published on ignition and extinction characteristics of range top burners.

Utilization — Domestic Water Heating: In the gas water heater field the overall efficiency is directly affected by heat losses. This subject has and is being studied from the angle of losses through external surfaces and piping, and standby losses through flues. New technical data on combustion chambers and flueways of gas storage water heaters, of real value to designers, is now in possession of all manufacturers as the result of this research project. Valuable data on the effect of cold water inlet temperature on the combustion and operation of water heaters have just been published, and important studies on maximum hot water delivery have been completed.

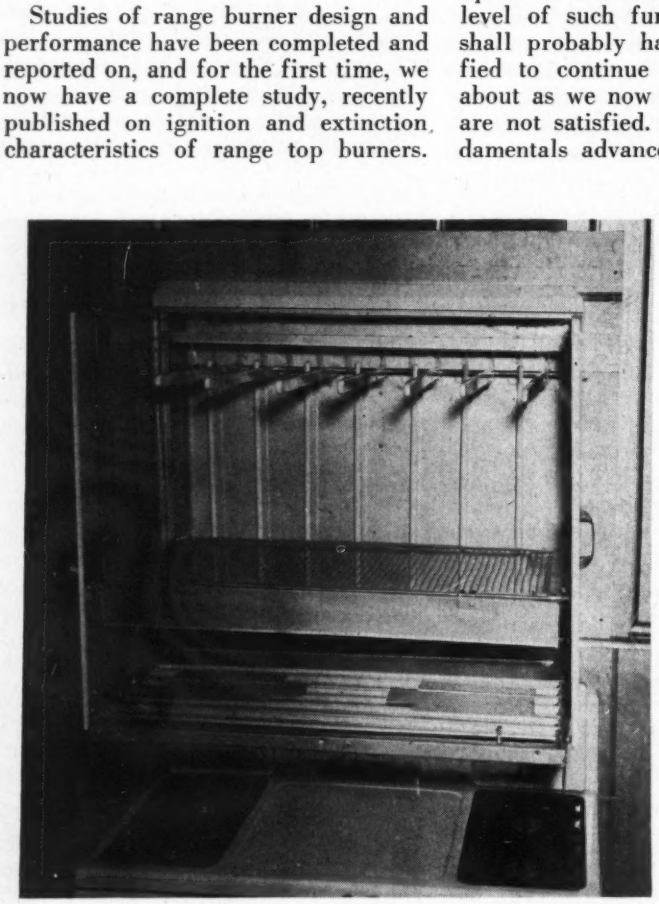
FUTURE

Now with respect to the future in gas utilization—drastic improvements in appliances other than in appearance and convenience gadgets are definitely linked to and limited by *fundamentals*. Present adaptations of combustion in domestic gas appliances, accepted as conventional, have been developed from presently known technical data, basic principles and formulas. Such technical data, basic principles and formulas are the *fundamentals* from which structural design has been built up. If we are satisfied with the present level of such fundamentals then we shall probably have to remain satisfied to continue to have appliances about as we now know them. But we are not satisfied. No one is. As fundamentals advance, each step in that advance will be accompanied by many other potential benefits in design and construction. The objective of this association in its domestic gas research program is to so advance fundamental technical data and fundamental knowledge that the shackles that hold back engineering, design and construction will be broken. The domestic gas program is the largest one of the association in research. It is well that it is.

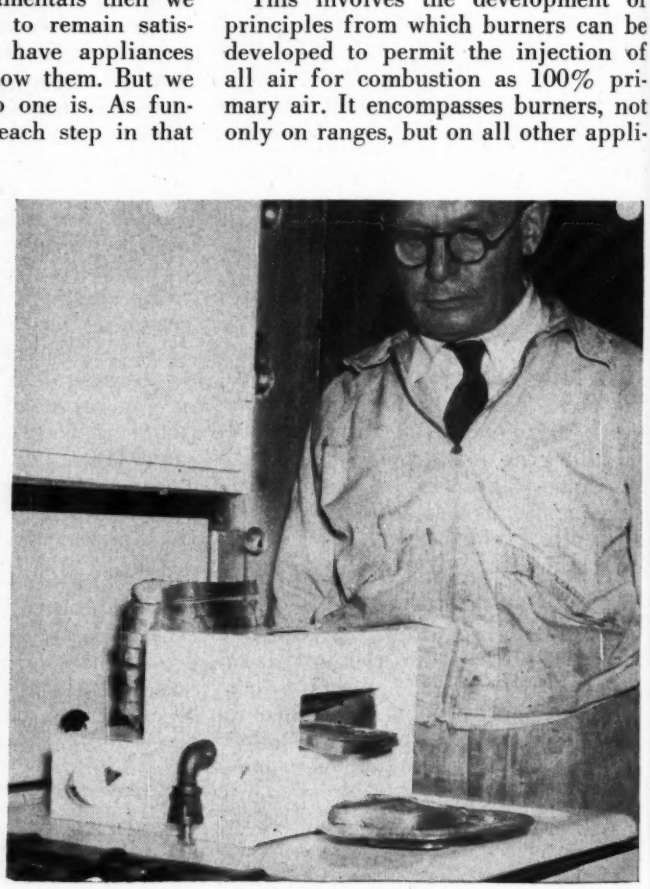
Our research work to date in the domestic gas field deals with endeavors, step by step, to improve the functioning of appliances which have been used until now. We must be careful in this slow, patient effort to improve these so-called conventional applications that the applications themselves do not become obsolete, thus rendering the improvements behind the times and, therefore, obsolete as well.

Individuals in the industry have felt the need, and have been asking for, some new conception of the application of gas heat in the domestic field, and rightfully so. To meet this need, the domestic gas research committee at its meeting here last Monday decided to devote even more attention than in the past to this subject and to accelerate one item, which has as yet been explored only in a preliminary way.

This involves the development of principles from which burners can be developed to permit the injection of all air for combustion as 100% primary air. It encompasses burners, not only on ranges, but on all other appli-



Drying cabinet above gas range.



Gas-fired toaster.

ances as well. Therefore, if this particular research investigation is productive of the desired results, the beneficial effect will be universal on all domestic appliances. Whether the idea will become an accomplished fact remains for the future to determine, but, at any rate, the work is under way. If the project proves possible of accomplishment, practically all present technical designs will become obsolete and a new day will dawn upon us in the realm of gas appliance performance. This development should give us a greater intensity of flames, greater speed and efficiency.

Let us proceed a step further. In the field of industrial application, "pre-mixed" combustion has already proven highly successful. This principle should also be applicable to the field of domestic gas utilization. While there may be some difficulties in the initial period of use of domestic appliances incorporating the "pre-mixed" principle, think of the headaches and limitations which would ultimately be eliminated. No more carbon monoxide generated from impingement. No more adjustments of individual burners. Universal burners (interchangeable) for all gases. Elimination of air shutters, heavy venturi tubes, ventilation bowls and recessed grates. This improvement would give us clean range cooking tops and burner compartments, double the cooking speed and generally increase efficiency and capacities, resulting in cooler kitchens and numerous other advantages.

Here is something about which to be really enthusiastic. To some it may sound radical. Well, remember that it may be radically right as well as radically wrong. We, in the gas industry, choose to believe that our technical advances are radically right because they are based on sound, scientific research. But it is bold research not afraid to tackle difficult subjects; not afraid to start all over again and again when a particular investigation is nonproductive. Bold, intelligent research backed by strong association planning and thinking should continue.

Responsibilities of Utilities and Manufacturers: Our gas utility industry has control of its economies in the production, transmission and distribution of gas. Much attention has been paid to these three phases of our business and no apologies have to be made for the technical progress made therein. With respect to the promotion and sale of its product, the industry has a fair record in recent years. It keenly feels its responsibility to promote the use of its product, yet it does not manufacture a single device in which its product is utilized.

The nearest parallel to our industry in these United States of America is the electric industry. To some degree it shares the peculiarity just mentioned. Yet, the electric utility industry is more fortunate than we are because the principal manufacturers of electrical appliances are, in themselves, big industries. Furthermore, the major electrical appliance manufacturers are not only engaged in the development, production and sale of appliances, but also are designers and manufacturers of electrical generating, distribution and lighting equipment. Accordingly, their incentive is twofold, the greater the success in their appliance business the greater becomes the need for their generating and distribution equipment. The number, size and nature of these manufacturers is such that there is endless incentive for research and development on their part with substantial resources with which to carry it on.

Were the manufacturers of gas appliances, similar in size and organization to those in the electrical industry, there might then be no need for our industry to sponsor and carry on centralized basic or fundamental research in either the domestic or the industrial fields. On the other hand, the utilization of gas does introduce complications. Therefore, regardless of how the gas appliance manufacturers are organized and regardless of their size, it may always be essential for the industry to make available to the manufacturers basic and fundamental data on the utilization of gas, as an aid to them in carrying on appliance development work. Without having such technical data available, appliance development and design becomes a cut and try operation. Heaven forbid that we ever have to depend for our progress on such methods. We all know full well that the advancement made by an individual business or industry can most frequently be best measured by the amount of intelligent, efficient research in which it engages.

Only as our gas utility business grows in size and strength can the manufacturers expect to do likewise. On the other hand, only as the gas appliance manufacturers successfully make available to and sell to the public the product of their factories, can the gas utilities be successful. Our interests and those of the manufacturers are irrevocably interlinked and this basic fact must be remembered if both are to successfully remain in business.

Never has there been a time when there has been greater need for unity; (1) within the gas utility group; (2) within the gas appliance manufacturers' group, and (3) between them both.

Some of us in the industry may not be inclined to appreciate the problems and viewpoint of the manufacturers, and for that reason make it "tough" for them. On the other hand, it may be that certain manufacturers feel that because part or all of their outlets are through channels other than the gas utilities they become quite independent of the industry. But they should not forget that insofar as their gas appliance business is concerned their interests, regardless of their selling outlets, are closely interlinked with the interests of the gas utilities. There is a community of interest from which neither the utilities nor the manufacturers can divorce themselves.

The gas utility business, through its association, has recognized its part of this obligation and currently has appropriated over one-fourth of this year's association's gross income for domestic gas research. This appropriation follows an expenditure in the last association year of an amount nearly as great. From this accelerated rate of doing fundamental research, published results will shortly begin to flow in greater volume than ever before. A resolution adopted seven years ago by the executive board of the American Gas Association has confined the research done by our utility industry in the domestic field to basic or fundamental research. Accordingly, the best that can now be expected from our association's current domestic research activities is the advancement of fundamentals which are to serve as the basis of appliance development work by manufacturers. Therefore, it is the responsibility and obligation of every manufacturer to follow closely the results of our fundamental research.

CONCLUSION

Let us eliminate all flag waving regarding research and think in terms of doing all that is necessary, and doing it intelligently, to find the hidden treasures to enable us to revise presently accepted data and conclusions and even disregard the old as newly discovered facts so warrant.

We trust there is confidence that the research now being planned and carried on by the AGA laboratories and other agencies where advisable, under the direction of your association's committees, is a forecful and intelligent move to solve our problems.

With a united and coordinated industry—manufacturers and utilities—building its future on a sound foundation of research and progressive management, we can look forward to the progress of our business with courage and confidence.

AN ANALYSIS OF UTILITY TAXES

By ASEL R. COLBERT

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CURRENT war taxes vitally affect utility operations. If refinancing is planned, a merger or consolidation considered, or the purchase of stocks of another utility contemplated, the effect on income and excess profits taxes becomes of great importance. Likewise, the timing of necessary expenditures must be considered so as to obtain maximum tax benefits. If a utility in a given year has received the benefit of unusual deductions, such as might occur from a refinancing, which take it out of the excess profits tax brackets, the management may find it wise to postpone certain controllable expenditures to the next period so that they may reduce the excess profits taxable income. Further, with an excess profiits tax of 81% (90% less postwar credit of 10%), the tendency to make unnecessary expenditures simply because a thing can be done cheaply, tax saving considered, must be guarded against. In fact, it may not be too much to say that utility management must consider practically every transaction with regard to its tax effect.

Current high taxes likewise make a problem for regulatory commissions in rate cases and have created discussion as to whether such taxes are wholly includable in expenses allowed for rate purposes.

Income Tax: The law as to income taxes in rate cases has been established for some time. In the Galveston Electric and Georgia Railway & Power Co. cases (258 U. S. 388 and 262 U. S. 625, respectively) decided by the U. S. Supreme Court in 1922 and 1923, income taxes were treated as operating expenses. However, the court held that the fact that it was the federal corporate income tax for which deduction was made must be taken into consideration in determining what rate of return should be deemed fair, because the stockholder did not include in the income on which the normal federal tax is payable the dividends he received from the corporation. The court held that this tax exemption was, in effect, part of the return on the investment. The precedent established by the court in these cases has been accepted as controlling, at least up until the impact of the present high tax rates.

It is significant that in 1922 when the question of allowance of federal income taxes as an operating expense was before the court, dividends were exempt by statute from normal income taxes. Thus, the corporate income tax could easily be viewed as, in partial effect at least, a withholding tax on the stockholder. In these circumstances, it was logical that the court should hold that the allowed rate of return should give consideration to the fact that the income taxes had been included in expenses and that this allowance was part of the return on investment. Under the present tax statute, however, dividends received by individual stockholders are subject to both normal and surtaxes. Hence, the income tax paid by a corporation cannot be viewed as a part of the return of the stockholder. Both the corporation and the stockholder pay full income taxes so that there is really a double tax levy on the same income, once to the corporation and again to the stockholder. It seems clear then that federal income taxes should be allowed in operating expenses considered for rate purposes, otherwise this burden of double taxation would fall entirely on the individual stockholder.

Excess Profits Tax: The excess profiits tax creates a more perplexing problem. Should it be allowed as an operating expense for rate purposes? The natural tendency is to reason that since it is a tax on excess profits and since utilities should not have excess profits, then the tax thereon should not be passed on to customers. Such reasoning would be appropriate if the excess profits tax were in fact a tax on excess profits. But the tax applies to income before deduction of normal income and surtaxes and hence is imposed on income from which all charges have not been deducted. Surely there can be no proper determination of "excess" profit until all expenses have been covered.

The statute also establishes necessarily arbitrary definitions of "excess" income. Any income in excess of rates graduated downward from 8% to 5% of invested capital, or 95% of income during the base period 1936 to 1939, dependent on whether the invested capital or average income method is used, is subject to the excess profits tax. Corporate income in excess of these earnings is not necessarily excessive. In the first place, average earnings for 1936 to 1939 may not have been normal. Further, the average income method does not provide for growth of business quite apart from any war activity.

Next, invested capital is a statutory thing which is built up, not necesrily of the actual cost of the corporation's property but of predecessor's costs if the property was acquired at some earlier date in a tax free reorganization. Likewise, depreciation deducted for tax purposes in earlier years, even though now known to be clearly excessive, must be considered. Hence, statutory invested capital may be substantially less than the real corporate invested capital or less than a reasonable rate base which might be found by regulatory authority.

As a result, a utility may be subject to an excess profits tax when in fact there is no income which is excessive as measured by any of the usual regulatory standards. In effect, the tax is simply an additional income tax and results in part of net income being taxed at 81% and part at 40%. And if income taxes are includable in operating expenses, then it seems the excess profits tax should be similarly treated.

However, these taxes cannot equitably be allowed in operating expenses without at the same time considering that the allowable rate of return should be substantially reduced. If all income and excess profits taxes are included in expenses, then the return after these taxes must be adjudged in the light of what return is reasonable under today's conditions and not by the standard for reasonable returns in earlier years.

An illustration may demonstrate this more forcibly. Assume a utility with a capital of one hundred million dollars was earning 6% before the war when its income taxes were 24%.

*Paper presented before Commission Engineers Conference at Chicago, Ill., June 17, 1943.

If the utility were financed entirely with common stock, and assuming it used the invested capital basis of determining excess profits income, its return after taxes at the present rates would be 4.02%. However, if the same 6% return were to be allowed after taxes then rates would have to be so increased that the net income before taxes would be raised from 7.9% of capital to 18.3%, or more than doubled. Such large rate increases are not in the picture. Not only would they be contrary to the policy of the federal government in its efforts to prevent higher prices and inflationary tendencies, but the magnitude of the increase necessary to hold returns to normal levels might easily result in charges for service in excess of its value to customers, with accompanying decreases in consumption, so that no improvement in net income could be accomplished.

Meeting the Problem: There are two regulatory processes by which this situation can be met. The first is to disallow as an operating expense the portion of the present taxes which is considered to be abnormal and to allow a rate of return based on more normal operations. The second is to allow all the taxes as an operating expense and reduce the allowable rate of return materially.

The first procedure, to date at least, seems to have been received more favorably by regulatory authority. (1) However, it involves considerable difficulty in estimating what are normal or reasonable taxes for rate purposes. Certainly the income taxes of the past do not throw any great light as to what may be normal for the future. In fact, with the present huge national debt and the tremendous increase therein being created by war expenditures, it requires no stretch of the imagination to surmise that future normal taxes will be higher than at any time preceding the war.

Another objection to the practice of disallowing abnormal war taxes as an operating expense and allowing a normal rate of return is that it departs from actualities. No matter how a regulatory authority handles the tax in a rate case, the utility must pay the tax liability and the net income accruing to its security holders is reduced. Hence, where disallowance of the abnormal taxes shows an indicated return for rate purposes of say 6%, there may be in fact only 4% to pay interest and dividends. Additional income to security holders is not created by disallowance of expenses for rate purposes.

It seems more realistic to allow the current income and excess profits taxes in expense but to reduce the allowable return. The reduction in return should be substantial. If 6% was reasonable before the war, then a return of 4% after all taxes cannot now be considered unreasonably low.

Patriotic Attitude: It has been my observation that the utility industry in general is not attempting to pass the increased tax expense on to customers. Likewise, that it is accepting the burden of increased taxes in a patriotic spirit. As an example, the annual report to stockholders of one of the Wisconsin utilities states that "High taxes are an inevitable burden of war. The government must be supplied with necessary revenues to carry on this fight. All of us must assume our fair share."

I think we can all agree with that statement. But, although granting the need of tax revenues and although standing ready to pay whatever is necessary to win this war, we should nevertheless analyze tax legislation and do everything that we may with propriety to assure that the tax burden is spread fairly. This is because taxes are at such high levels that an unfair or discriminatory feature of the statute becomes virtually confiscatory on the taxpayer which it affects. Therefore, where unfair conditions are found they ought to be corrected, even though other tax rates must be increased to compensate for loss in revenue.

Suggested Tax Law Revisions: Substantial changes in the Internal Revenue Code, other than to raise more revenue, may not be likely during the war. Nevertheless, I shall mention a few instances where our lawmakers could improve the equity of the code.

The statute now provides that equity invested capital includes the money and property paid in for stock, or as a capital contribution, and accumulated earnings and profits. At first blush then it would appear that a company's capital stock and surplus accounts would show the amount of equity invested capital. Not so, in most instances, at least in the utility field. That is just the starting point. There must be deducted the amounts distributed in dividends in past years which did not come out of earnings and profits. The property paid in for stock must be included at its tax basis. If the company acquired the assets of another company by a "tax free" reorganization in the past, the value of the property for invested capital purposes is its tax basis (generally cost) to the predecessor. And this process may go back through several companies until the property is traced to an original acquisition for cash or equivalent in a taxable transaction.

Depreciation must be deducted as it has been taken for income tax purposes in the past. Many utilities have accrued retirement expense in their accounts while claiming straight-line depreciation expense for tax purposes and showing less taxable income than reflected by the corporate accounts. Hence, distribution to stockholders may be in excess of earnings shown by the tax basis and invested capital must be reduced accordingly.

The result of adjustments of this nature for invested capital purposes is that in many instances utilities whose corporate security structure would indicate no excessive earnings are nevertheless subject to heavy levies for excess profits taxes.

It can be argued that there having been a tax benefit from past depreciation allowances for income taxes and past tax free property acquisitions, it is proper to hold the taxpayer to a similar basis for present income and excess profits taxes. The justice in this treatment for income taxes is clear but it is pretty rough for excess profits tax purposes. The latter tax is definitely a war tax. It is aimed at preventing unconscionable or unreasonable profits out of war activities. Everyone seems agreed that there should be no "war millionaires."

But whether profits are excessive need not depend upon an intensive analysis of all the corporation's history or of all its previous tax returns. The corporation's own balance sheet and income statement should reflect this information. In all fairness, statutory invested capital ought to be based as nearly as possible on the capital shown in the balance sheet of the corporation. It is true, there are instances where the capital shown by such statements may be inflated and a corporation might receive very advantageous treatment of its book invested capital were used for the excess profits credit. But it is also true that there are instances where, under the present tax law, the statutory invested capital may be more than the book figures. Taken as a whole, there seems good reason to believe that if statutory invested capital were based on the balance sheet of corporations as of, say, Dec. 31, 1939, to get a date prior to the revenue act, plus actual additions to capital, with

[1] Panhandle Eastern Pipe Line Co. v. Detroit, decided Sept. 23, 1942, 45 P. U. R. (N.S.) 203. In that case Federal Power Commission stated abnormal taxes due to war conditions should be disallowed. Similar treatment has been accorded war taxes in a number of state commission cases.

appropriate restrictions relating to write-ups or revaluations designed to permit tax evasion, the results would be as fair as the present usually controversial tax figures.

Further, even if such a revision resulted in loss of tax revenue, it would be more equitable to raise the normal tax or surtax to compensate for such loss than to continue to assess an excess profits tax on income which in fact is not excessive as measured by any business standard. The resulting saving in cost of administration of the law would be material for the present law is so involved, and so controversial, that although it may prevent "war millionaires" it may bring forth a crop of "postwar millionaires" among the tax experts engaged on the great number of cases to be contested.

The Internal Revenue Code should be revised so that normal income tax and surtax should be computed first and deducted in calculating excess profits taxes. There is no basis in logic for the present practice of computing excess profits taxes on income from which the normal taxes and surtaxes have not been deducted. The only reason seems to be the need for additional revenue. But if the excess profits tax is to be a tax of the kind indicated by its name, all expenses should be deducted before determination of excess profits income. Among these expenses should be normal income and surtaxes. Such a revision in the statute would entail a loss of revenue and would no doubt require an increase in normal or surtax rates. It seems to me, however, that it would be better to have a sound method of determining taxes and to let the tax rate fall where it will, dependent on the needed revenue, than to have an illogical method of computation of tax liability inherent in the statute.

A discriminatory feature of the federal electricity tax of 3⅓% could profitably and equitably be removed. At present, this tax does not apply to publicly owned electric systems or those owned and operated by cooperatives or non-profit organizations engaged in rural electrification. The reason for this exemption is not clear although it appears to have been granted solely for the purpose of aiding public ownership of utilities. Tax legislation to bring about or further social or economic reform is always fraught with the danger of creating an unfair tax situation due to inability to evaluate all consequences of such a program. In this instance a real discrimination is created because private utilities must pay the federal electricity tax while publicly owned utilities are exempt.

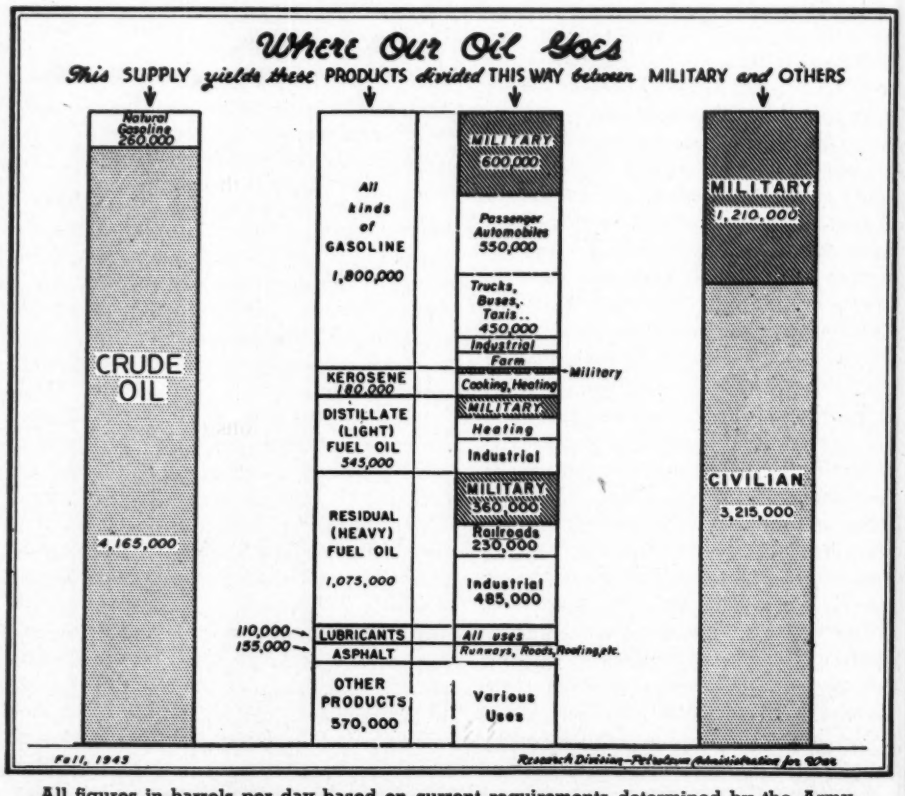
Since this tax is treated as an operating expense for rate making purposes, it, in effect, is borne by the customers of the private utility. Thus, when a customer of a private utility uses electricity a tax is payable but when a customer of a publicly owned plant uses energy, no tax obligation is created. The particular type of ownership of the utility does not seem sufficient grounds for discrimination as to who shall pay the tax and the statute could profitably be modified so as to remove this discrimination.

A revision of the statutes which would create additional tax revenue and at the same time remove a discriminatory feature of the act, would be to tax the income from government bonds. As the law now exists, interest on such obligations is exempt from taxes. To quote Roswell Magill, (2) "It would seem that persons receiving income from state and municipal bonds ought to contribute the same tax to the support of the federal government in this emergency as do their neighbors receiving like amounts from salaries, dividends, or interest from other securities. Granted that these bondholders contracted in peacetimes for immunity, should not that immunity, like other liberties, yield to the paramount demands of total war?"

[2]Roswell Magill, The Impact of Federal Taxes, p. 26.

It is to be noted that the salaries of employees working for governmental agencies are subject to federal income taxes. It is a rather anomalous situation where the amount a governmental agency pays to labor by way of wages is taxable while the amount it pays to capital as interest is tax free.

These are just a few of the modifications of the Internal Revenue Code which, in my opinion, should be made. The fact that tremendous tax revenues are necessary should not be permitted to stand in the way of these and other revisions designed to spread taxes more equitably. Rather, the current high rates make modification to correct inequities and discriminations even more necessary else the tax burden becomes confiscatory. It should be kept in mind, however, that the modifications of tax laws here suggested are not made with a view toward reduction of the total tax burden. We all know that is high and must go higher. The American people are ready to pay that burden, whatever it may be, to bring about the defeat of our enemies. But the American policy of fair play dictates that the tax burden be spread as equitably as possible to the end that all pay their fair share of the cost of total war. To attain this goal, additional research by our tax experts and appropriate action by our lawmakers is recommended.



All figures in barrels per day based on current requirements determined by the Army-Navy Petroleum Board, Office of Lend-Lease Administration, War Shipping Administration, Office of Economic Warfare, Office of Defense Transportation, War Foods Administration, Office of Civilian Requirements, Office of War Utilities, Office of Rubber Director, Petroleum Administration for War, Oil Controller of Canada. (Research Division PAW.)

Some Pointers on Selling Gas--Tomorrow

By DEAN H. MITCHELL

President, Northern Indiana Public Service Co., Hammond, Indiana

TODAY we in the gas business are faced with different problems. We are not introducing a new product nor selling a new use of the product of an infant industry. At the end of last year 18,000,000 American homes enjoyed the benefits of gas service. The industry has come of age and now takes its place at the modern business table, and that place carries with it certain problems to be faced in the future.

The day of the new and undeveloped market has passed and in its stead is the promise of fierce competition for favor in the eyes of the homemaker.

Post-War Home Building: Experts hint at a vast home building program in the post-war years. The share of that business *we* secure will depend upon our intelligence and aggressiveness. Designers reveal fleeting glimpses of future homes built for the full enjoyment of living. Not only must we think in terms of complete gas service for that home, we must think in terms of equipment that will (1) meet the style and beauty demands of the designer; (2) interpret the value of gas service in most favorable terms to the customer.

We must then seek out the customer, through his builder or designer, in his home, at his favorite dealer's store, through his magazine or newspaper, or wherever he may be found, and convince him that gas can play an important part in providing for him the all-round satisfaction he wants from his "home of tomorrow."

We must be ever mindful that gas in the home is an *accepted service*, that the faltering days of introduction are over and in their stead are days of "marketing" in the broadest sense.

Some Problems in Post-War Marketing: The new era the gas business is about to enter *can* prove more prosperous and yield more business than we have known in the past, yet the fact that we know changed conditions will exist makes it imperative that we prepare our plans carefully while we have the opportunity.

Marketing gas service in the post-war days will involve the consideration of the following problems:

1. Determination of Characteristics of Desirable Load based on the physical conditions that will exist within a company relative to productive capacity, gas supply and the characteristics of loads that would be most desirable to develop.

Assume that gas supply and productive capacity are available, that the problem is the *sale* of the product. When we served a lighting load only, there was no way to improve plant or system load factor. Peak loads were experienced during maximum lighting hours, and there wasn't much that could be done about it. Later, when cooking was substituted for lighting, a similar underlying condition existed, although there was some advantage of diversity because the lighting load was lost gradually and cooking was done several times a day. Further, other uses for gas service, both domestic and commercial, were being experimented with, and while there seems to be no accurate record of the development, it is quite likely that interest in a variety of uses, aside from cooking, was initially fostered or at least encouraged by the production man who saw the opportunity to lower costs through diversification of load.

Since this discussion is concerned with problems of the residential load, it can do no more than point out that the wide acceptance of gas in the commercial field and the many uses for industrial gas which have greatly expanded due to war-time conditions will emphasize their importance as a component in the characteristics of the total load imposed upon the plant. Their relation to the residential load will probably have changed to a degree that will require a reassignment of importance to the various classes of load.

When that is being done, it should be borne in mind that home heating and year-round climate control through the addition of gas air conditioning may materially change the nature of the residential load in many parts of the country. There seems to be but a meager amount of information available about the characteristics of the load imposed by various gas appliances used in the home. The more knowledge acquired on this subject, the easier it will be to measure the desirability of the over-all residential load and its component parts.

The first point, therefore, can be summed up by saying that it will be desirable to approach the post-war sales task with a plan, based upon accurate knowledge, to secure what would be the most desirable load if we were given free choice.

2. Measuring the Market: The second major point to consider is the kind and size of the residential market that will be available to gas. In measuring this market, the sale of replacement equipment for reasons of obsolescence, style, etc., will not be the only concern, although it will represent a large volume of business immediately and each year thereafter. The sale of such equipment will be important in retaining gas service in a market we have already captured. A second important task will be to study the broader phases of the market that will involve sale of *added* quantities of gas.

For example, to what extent are habits and preferences of the public going to affect the use of gas? Are present food shortages apt to create "eating-out" habits that will reduce the use of gas in the home, or is it possible that the good work of many home service departments in connection with canning will continue to bear fruit in peace time? Will Mrs. America continue to preserve food by home methods? Can home baking and food preparation be encouraged with beneficial results? Is the present shortage of domestic help temporary, or will it permanently affect the operation of the American home? If the home of the future is to be operated on a "servantless basis," it is highly important that we study the type of equipment that such a home will require.

Cleanliness will take on a new meaning because of the lack of help.

Convenience will mean conservation of time which the housewife will have to budget thoughtfully.

The quiet, carefree operation of the gas refrigerator will be a "must" in the home that operates on an efficiency basis.

The words "automatic water heater" will be more than a sales slogan. The householder will demand this service as a necessary item in the operation of the planned home.

Temperature and humidity control in the home both summer and winter

will be demanded not only to add comfort to living but to save time and safeguard health through convenience and cleanliness.

The changes that will take place in the living and buying habits of the public will be the result of underlying causes, and the above illustrations indicate how the market for gas will be affected. This can mean a greatly expanded market, but it definitely will mean new responsibilities for the gas industry, and somewhat different methods of selling gas.

If gas service is to be included in tomorrow's home because of its value in over-all home operation, we must make sure the equipment which interprets its value is the correct kind and we must know the size of the market that exists. It will not be sufficient to leave the development of gas-burning appliances to the fancy of a designer or a buyer for a large outlet, based on what may, in his mind, constitute a good promotional item. The control of the type of appliances sold must remain in the hands of a progressive gas industry.

The responsibility of assisting manufacturers in designing equipment must be assumed. The size of the market for equipment must be measured, and such information must be kept up to date.

3. Meeting the Competition: The third major point has to do with securing acceptance for gas by the public in preference to competition, and competition means not only competitive fuels but other goods and services that compete for the consumer's optional spendable dollar.

This involves creating a desire in the mind of the prospective user that is strong enough to influence his action in purchasing gas in spite of competitive urging.

In the American way of doing business, creating a desire is almost synonymous with advertising, and advertising of many kinds will be necessary; but the kind and amount must be determined accurately.

If the value of new residential load and the amount of such load available has been previously determined, it will be possible to arrive at the expense justified to reach the desired goal. Because competitive forces are national in scope it will be necessary to view advertising from a national as well as a local viewpoint. Any effort that falls short of the studied, indicated, allowable maximum for advertising will invite the entrance of competition. Competition is and has been out-advertising the gas industry, and in all probability will continue to do so in the post-war period. Local advertising alone cannot do the job.

The gas industry *will recognize the wastefulness of doing less than we should*, based on the value of the load involved. A *desire* created by advertising must be satisfied. The product must be good and do what is claimed for it. It must be delivered by an organization that is well trained and appreciates its responsibilities, and finally it must be sold under a rate structure designed for the purpose.

To summarize point three—knowing the value of the load and the size of the market, the gas industry must be able to gauge the effort that can be justified in creating market acceptance.

4. Making It Easy for the Customer to Buy: The actual delivery of gas to the customer and the payment therefor is one phase of the transaction, but I chose to place it alongside of advertising under point three. Gas service is judged by its performance plus the human contacts necessary to complete its purchase. Those contacts, good or bad, exert a strong influence on public preference for gas service, and hence build a desire for the service.

If contacts are to be of the type desired, steps must be taken toward the development of a well-informed, enthusiastic employee group. Employees must know the problems facing their company and they must know *how* they can best help solve them.

Gas service in all forms must be interpreted through some form of appliance. It is these appliances sold for new uses or to new users that will give us the increased load. Knowing the value of the load, the extent of the market, and the effort to be made in cultivating that market, the matter of appliance distribution will take on added importance. The gas industry will feel a greater sense of responsibility toward equipment distribution channels. It will not be sufficient to merchandise or leave the job to the dealer with no more than a passing thought about the results of such a decision.

The Manufacturer: The problem starts with the manufacturer. Any reliable maker of good equipment, whose product makes customers satisfied with gas service, is entitled to industry support. In fact, an industry aim must be to so popularize gas service as to encourage and retain the interest of sound, aggressive manufacturers of reliable gas-burning equipment.

The distribution channels open to a manufacturer will be of direct concern to the gas industry, and we will need to assist and encourage their development wherever possible.

The Dealer: The dealer and his sales force will take on added significance. War-time conditions have caused many dealers to close up shop, while others are getting experience in selling lines they have not previously handled. Will they all come back to selling gas appliances when the war is over? We not only hope so—we must replace them if they don't; and you can add to our problem the strenuous efforts that will be made by other lines of merchandise for dealer distribution outlets.

A vast network of outlets for a variety of appliances will be necessary to make it easy for the prospect to buy new uses for gas service.

Sales Training: One point that will receive added emphasis is that of personnel training. Efforts along this line prior to the war indicated the value of this work. When we consider that the sale of an appliance to the customer is in most cases through personal contact and add to that the task of selling new uses and new users in the competitive post-war period, the importance of personnel training, both for the utility and the dealer, becomes apparent.

Conclusion: Will it be necessary to scrap pre-war marketing methods and use an entirely new approach? The answer, obviously, is "No."

The gas industry will still have a product to sell and competition to meet. The vexing questions of terms, trade-ins, commissions, etc., will still be with us, and there will be no substitute for hard sales work and satisfactory service. It is encouraging to note that from a recent survey it is indicated that more than 90% of the operating gas utilities in the country intend to resume aggressive, direct merchandise efforts in the post-war period in cooperation with a strong dealer program.

In the same breath it can be said that the gas industry will have to assume a new sense of responsibility for public acceptance of gas service. Its markets will be gauged on a broader base than heretofore by including gas as *necessary factor* in post-war living.

Advertising will be recognized as *necessary* to the development of *customer acceptance*, which must be created primarily by the gas industry.

And finally, we will take a renewed interest in the problems of distribution to the end that gas appliances will always be easy to buy.

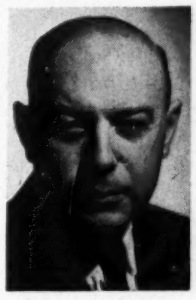
By *modernizing* our pre-war concepts of marketing methods we can look forward to what may truly be called the "all-gas home," where the natural advantages of gas, that is, *speed, convenience, cleanliness* and *economy* will be emphasized through appliances that combine *style* and *beauty* with *functional design* to the end that — to use the slogan of the gas industry's advertising program—"Gas will be the flame that will brighten *your* future."

Report of the Pacific Coast Gas Association's

Gas Industry Development Committee

H. L. MASSER, Chairman

3. Promotion, Advertising, Financing



H. L. Masser

GAS presents herewith the final sections of the Report of the Pacific Coast Gas Association's Committee for Industry Development, which has been compiled under the chairmanship of H. L. MASSER, executive vice president, Southern California Gas Co., Los Angeles.

The objectives in the PCGA program are: (1) Studies of Potential Appliance Markets; (2) Improvements in Gas Utilization Equipment; (3) Sales Promotion Plans, Advertising and Financing; (4) Engineering and Technical Studies; (5) National Economic Factors. These five points were extensively covered in a report presented before the 50th Annual Convention of the Pacific Coast Gas Association held in Los Angeles, Sept. 22 and 23. The first section of this report on Appliance Markets was published in GAS, Oct., 1943, p. 33. The second section, "Improvements in Gas Equipment," was published in the November issue, page 33.

Committee members are: R. G. Barnett, Portland Gas & Coke Co.; Edward H. Coe, Central Arizona Light & Power Co.; H. L. Farrar, Coast Counties Gas & Electric Co.; A. E. Holloway, San Diego Gas & Electric Co.; E. L. Payne, Payne Furnace & Supply Co.; James F. Pollard, Seattle Gas Co. (retired); H. A. Strong, Servel, Inc.; W. G. Vincent, Pacific Gas & Electric Co.

1. Coordination of Utility Policy on Merchandising Practices and Sales Policies With Appliance Dealers

THE adoption of reasonably uniform appliance merchandising policy by the utilities is of material importance in that it would permit manufacturers to better judge and prepare for their postwar market and thus be better able to meet competition, both for the sales to customers and for re-established distribution agencies to handle sales. The utility is in position to be the first to learn customer preference and to guide merchandising policies along desired lines, which generally should be much the same throughout sizeable areas with uniform service standards. Uniformity of merchandising policies can contribute appreciably toward meeting competition and thereby produce greater sales volume. Broadly standardized utility policies will permit large manufacturers to go further in the establishment of their national distributing and advertising policies to the benefit of the industry; notable in this regard is the experience with respect to gas refrigerators.

Will the utilities sell only ranges and refrigerators and leave water heaters to be sold only by plumbers and heating equipment only by special dealers?—or will the utilities sell all classes of equipment?—or will they actually sell none but merely cooperate with independent dealers? The answers to these questions establish the policy and will go a long way in determining the future of our business. Unquestionably, we cannot depend upon the independent dealer to have particular interest in the ultimate welfare of our business; he will sell what is easiest and most profitable at the time, and later change to another line if it is to his personal benefit. On the other hand, the utility is sincerely concerned with the customer's satisfaction in order to permanently retain his business against competition, so the utility must guide sales and sponsoring of appliances that will be mutually satisfactory. To a very large extent, the appliance is the interpreter of gas service to the customer.

We are about to ask manufacturers to undertake extensive improvements and changes in many appliances. This is a costly and difficult task; the longer it is delayed by the war, the less reliable data we have on customer preference. Therefore, the manufacturers have greater need for knowing the direction and extent of the utilities' sales programs, in order to judge how far they can go on new appliance developments. Thus it gets back to the utilities to formulate and adopt reasonably unified sales policies which will assist manufacturers to produce what the utilities want. There should be active cooperation between the utilities and manufacturers to facilitate the early development, testing and perfection of new appliance models, to the end that we may not find ourselves trying to sell a 1941 model gas range in competition with a 1945 electric range; our new specifications should be worked out and submitted now.

To a very large extent, the utility is dependent upon the dealers to make a high percentage of the total appliance sales. We are vitally concerned that these sales reflect credit to gas service. Some appliances with a high retail mark-up might be very attractive to a dealer and very detrimental to the utility because of lack of customer satisfaction. Therefore, there must be a cooperative policy with dealers, which paves the way for utility guidance in the selection of appliances to be sold.

2. Advertising: The National Program: Cooperative Advertising

It is frequently somewhat amazing to look through our popular magazines and note the extent of advertising now appearing for equipment which the manufacturer frankly states will not be available until after the war. However, this advertising, and much of it by our own competitors, is planting seeds of preference in the minds of future customers. The American public is most susceptible to good advertising, but the gas industry is showing but a very minimum of such copy. It is recommended that the executives of our companies carefully review the National Advertising Program with regard to enlarging its scope and making it adequately commensurate with the programs of our competitors.

Much local effect is gained by newspaper copy, which is jointly beneficial to the manufacturers, dealers and the utilities, each of whom have appropriations for such advertising. Unquestionably, a better and more effective job can be done by coordinated work. While the presentation of such advertising involves problems due to the fact that individual makes of equipment are promoted rather than a generalized coverage of gas appliances, this point is easily solved by the development of an equitable program. It is urged, that when the time comes,

our advertising departments have ready an agreed-to cooperative plan which will keep the merits of gas equipment sufficiently in local prominence.

3. Expected Extent of Post-War Financing Demands, and Methods of Preventing Excessive Unprotected Liabilities

With an expected post war national house construction program of a million units per year and probably half a million replacement jobs, it is naturally expected that individual utility companies will experience their heaviest sales ever. While there will also be a tremendous accumulation of surplus liquid assets, estimated at about 50 billion dollars by the end of 1943, there will still be a heavy demand for installment purchases, which from an economic basis might total 8 billion dollars. The share of this total possible installment purchasing, which may reach individual gas companies, probably will exceed any past experience. Each of our larger companies may easily be confronted with demands for annually assuming several millions of dollars worth of paper. Most economists anticipate a boom period immediately following the war, but there is danger of a serious slump a few years hence that would critically militate against completion of installment payments. During the pre-war period installment balances accrued to large figures and caused considerable concern; however, the advent of high war earnings quickly offset this situation and balances have declined to conservative figures. The later post-war period may quite reverse the pre-war conditions and produce heavy credit losses.

Advance efforts should be made to develop credit policies with conditions and limitations or the transfer of paper to commercial credit agencies, which will safeguard the utilities financially, and avoid for them the onus of undesirable customer relations resulting from repossessions by the gas company itself. It is suggested that this subject be studied by our sales executives in order to arrive at safe and reasonably uniform policies which may be followed by the entire utility group.

4. Engineering and Technical Studies

1. Production of High Btu. Gas From Coal and Oil Shale With Production of Liquid Fuels

DOUBTLESS the most basic question ultimately facing the gas industry on the Pacific Coast, where we now generally supply natural or manufactured oil gas, is that of our source material. We are all cognizant of the tremendously heavy drains now being made upon all petroleum products because of war operations which must continue at an undimished rate for some prolonged time. The Office of Petroleum Administrator for War has compiled figures of the nation's fuel reserves and uses which indicate the over-all comparison of their expected period of availability at present rates of use. See Table 1.

While the figures in Table 1 are on a national basis and conditions in any given locality may be either more or less favorable, it is nevertheless appallingly obvious that our petroleum and natural gas reserves have a very limited future. Natural gas and petroleum generally go hand in hand so far as production is concerned, but with the probability of ever increasing limitations on the amount of natural gas made available to the utility by oil producers. Conditions on the Pacific Coast are possibly no more favorable than the national average, which indicates a future gas supply at present rates of use of around 30 years, and an adequate petroleum supply for a considerably lesser period.

Managements of large utility enterprises do not generally think of corporate existence in terms of 15 to 30 years. Therefore, if we are planning for our continuing future, we must surely look ahead beyond the present apparent period of natural gas and petroleum supply. Hundreds of millions of dollars are invested in the gas distribution mains, services and meters of western companies serving natural or manufactured oil gas, so we should therefore begin to prepare plans now which will safeguard this investment.

In the future much of our competing electric energy will come in greater percentages from inexhaustible hydro-power sources, and in the immediate (post-war) period, these kilowatt hours will doubtless be sold at very low rates. If gas is to maintain its sales position, it must have a price advantage measure by net Btu. recovered in the utilization process involved, whether it be cooking, water-heating or an industrial application.

The statistics of petroleum reserves for this country show the relatively early necessity for the synthetic production of liquid fuels from coal and shale. Even the entire world's known petroleum reserves are none too large, and with the heavy demands for liquid fuels by the navy, automobiles and aircraft, particularly during war times, this country should begin now to prepare itself for independence and safety by the development of the synthetic production of liquid fuels from coal and shale, with the by-product yield of gas, which may also be chemically processed to increase the Btu. value.

The figures of natural fuel resources show that coal constitutes about 99% of potential total. However, in certain localities, possibly including California, oil shale may offer important encouragement, as shales readily yield large volumes of gas and also considerable oil, probably an average of about a quarter barrel per ton on direct heat processes. Under conditions of low priced crude oil, it has not been economically possible to mine and treat shales, but with the certainty of higher oil prices, shales will become an advantageous substitute source for petroleum. It is estimated that shales will be able to economically compete with petroleum at prices of $1.50 or less per barrel. Independent and government figures agree substantially on the potential shale reserves as being in the neighborhood of 400 billion tons, which at the rate of a quarter barrel of recovered oil per ton, indicates a source of nearly 100 billion barrels of liquid fuel, or five times our presently estimated remaining petroleum reserves. Considerable preliminary experimentation has been done with shales, but most of this has been confined to straight distillation. Undoubtedly, better yields of much higher value products will be possible after basic research and the application of new chemical processes, such as hydrogenation of the resulting oils

TABLE 1. U. S. FUEL RESOURCES

	Reserves	*1942 Output*	*Ratio of 1942 Output to Total Reserve*
Natural gas	97,144 M^3 c.f.	3,100 M^3 c.f.	1:32
Petroleum	20,083 M^2 bbl.	1,385 M^2 bbl.	1:14
Coal	3,181 M^3 tons	640 M^2 tons	1:3830
Oil shale	91,945 M^2 bbl.	None	

by catalytic processes and condensation and polymerization of the gases.

Any such research program as here proposed will surely require five or more years for laboratory development; then pilot plants or small operating plants will be built and probably another five years will pass before proven processes will be established and ready for adoption in large scale base load plants. This field of research is broad indeed, and will delve deep into the realm of chemistry. Doubtless, finally acceptable processes for the production of high Btu. gas, will go hand in hand with the production of liquid fuels, and both will contribute to yields of high value chemical by-products. If this assumption is correct, it is possible that the future may bring forth great plants comparable in operations to some of our large oil refineries, where a diversity of products are made.

With this picture before us, it appears important to the natural gas industry on the West coast (as well as to many coal gas companies in the East) that fundamental research be gotten under way for the development of processes for the production of high Btu. gas from coal and oil shale, which may supply Btu's. at a delivered cost sufficiently comparable with present costs of natural gas and to be effectively competitive with cheap electric power. This proposal is not intended to cast aside the possible advantages or economic soundness of the future construction of a major large sized natural gas transmission line from the west Texas fields to the Coast. However, such a line would be dependent upon an adequate available gas supply for sufficient years to justify the investment and permit deliveries at an acceptable cost. Again, such a new line for natural gas supply would have a fairly short life and then we must consider the use of coal and shale.

As it now appears that the production of high Btu. at a low cost per therm, which can supplant natural gas and successfully compete with low priced hydro-electric power, will become of fundamental importance to the Pacific Coast within a relatively short term of years, it is therefore recommended that an appropriate special committee be formed to suggest studies of gasification processes and/or to collaborate with the Institute of Gas Technology to study and lay out plans for basic research on methods of processing coal and oil shale for the production of high Btu. gas, liquid fuels and chemical by-products, all of which can carry their proportionate costs and thereby minimize the charges assignable to the gas produced.

2. Study of New Materials, Equipment and Techniques of Gas Distribution

War time developments of new materials have provided many civilian industries with substitute and in some cases improved materials. Some of these may be found to have special merits in gas distribution practice.

Important among these new materials are plastics. Already, small diameter tubes and pipes are being made which are particularly adaptable for interior building construction. However, as yet the question of fire resistance and resistance to attack by rodents has not been solved, but an answer to these points may possibly be found in other plastics. Some companies have employed soft drawn coiled copper tubing for the replacement of services, using the deteriorated original steel service as a conduit through which the new copper tube is pushed. Here appears to be a possible use for plastic tubing if suitable means can be developed for making the end connections. Plastic might readily compete in cost with copper, whereas it would probably be more expensive than steel.

Whether plastics may offer possibilities as substitutes for the larger sizes of steel pipe for mains and services remains to be determined. The first thought in making this suggestion is that plastics appear to be materials not subject to soil corrosion or deterioration, but as yet no long term experience is available. Another important question would be the comparative cost as compared with steel; possibly a silica filled plastic might be developed to reduce cost without too great a reduction of strength. In any event, numerous points must be studied and checked: costs, possible deterioration, physical strength, the making of joints and connections, etc.

Some consideration has recently been given to soft metal alloys (lead, zinc, tin, aluminum) for use as pipe which is resistant to soil corrosion. The post war period may bring about conditions which would make some of these alloys available at sufficiently reasonable costs to permit competition with steel in view of possible longer life. Doubtless, mechanical strength will be found to be a questionable factor and difficulties may be experienced in making joints and connections to existing steel lines. Other types of pipe materials, such as transite and concrete, have been proposed for small and large gas pipe—and here again strength, tight joints and connection problems have out-weighed possible advantages of long resistance to soil deterioration.

Presently, steel is the almost universal pipe material in many sections of the country. However, this is subject to relatively rapid corrosion, dependent upon soil conditions and the average gas main probably has a life of less than 30 years. During the past 20 years, efforts have been made to extend this life by the application of paints, asphalts, coal tars, vitreous enamels, greases, coatings, wrappings, etc. It is questionable if any of these adequately meet requirements as to added life cost, ease of application and the making of field joints. One principal weakness is lack of absolute resistance to moisture. An absolutely moisture resistance coupled with good mechanical strength, low cost and ease of application, would provide the ideal pipe coating. There now appears to be hope for more nearly approaching this paragon than formerly by the use of new synthetic resinous lacquers or plastics. This is an excellent field for experimentation.

One of the sciences in which great progress is now being made is that of synthetic rubber. Certain of these manufactured rubbers are extremely resistant to oils and other hydrocarbons. This raises the question of possible adaptability as gas meter diaphragms. "Tin" meter diaphragms, when made of leather, must be sewed together and fitted to the rings and discs. If a suitable synthetic rubber compound could be developed it would offer the possible advantages of a smooth molded diaphragm with uniform flexing. Similarly, rubber diaphragms might be developed for cast iron case meters. New rubber compounds have recently been developed which are showing superior qualities for flat type diaphragms, as used in high pressure regulators where high mechanical strength and resistance to solvents are required.

A remarkable thing in the gas industry is the "tin" type meter. This device was developed many years ago in practically its present form. While numerous improvements have been made, these are mostly in the nature of refinements rather than fundamental changes. Today, the construction and repair of this meter requires a large amount of skilled hand labor, working with many soldered seams. Nearly the entire case construction is at variance with the types of design of mechancial devices which we now most frequently see. In spite of this, the "tin" meter's performance is good, but it does seem that the present design might be radically revised, with the use of formed and rounded sections and many fewer soldered joints,

FOR Unbroken

FOR UNINTERRUPTED distribution, repair all leaks and breaks in mains with SKINNER-SEAL pipe repairs — standard for two generations.

Owing to the widely-known malleable iron shortage, due to munition purchases, our shipping schedules — for the first time in nearly 50 years — are seriously upset. On SKINNER-SEAL Bell Joint Clamp above 12", we have a particularly indefinite situation and advise correspondence. Other sizes and types of pipe repairs mostly range from two weeks to 90 days.

We are doing the best we can under the circumstances, but earnestly request that you anticipate your requirements as much as possible so that we can lay out our factory schedule to the best advantage. Remember when you use a clamp you save a length of pipe.

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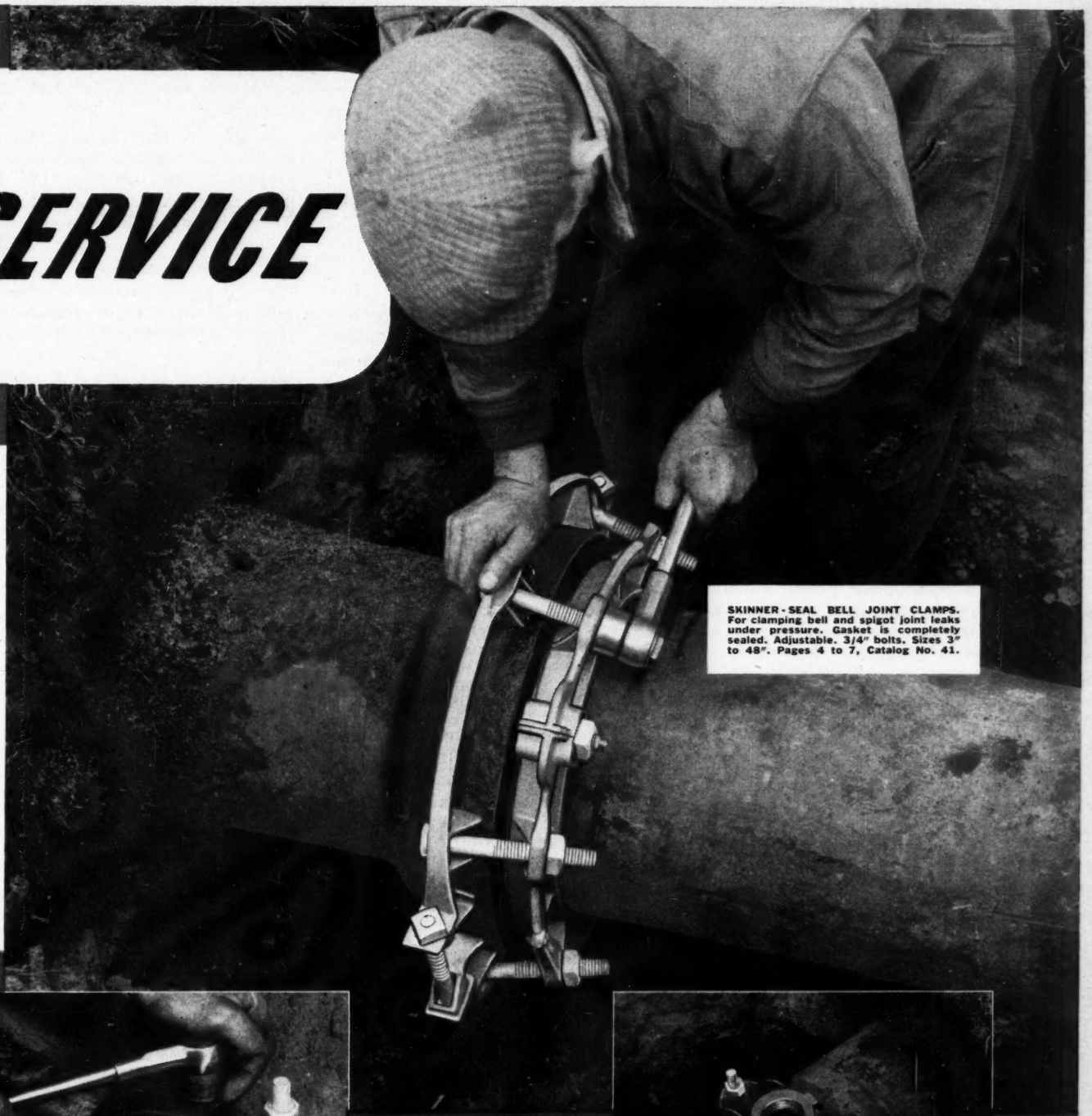

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R CO., SOUTH BEND, INDIANA, U. S. A.

and thereby become an easier instrument to maintain.

An intesting development resulting from threatened war emergencies is a crusher for steel pipe lines to quickly close the end of a ruptured line which does not have a nearby valve. Such crushers have been made to take even large sized pipe, and crimp the end sufficiently gas tight to permit men to work around it. Small crushers have been powered with blank cartridges and large ones with hydraulic jacks.

5. National Economic Factors

1. Manpower Problems and Maximum Post-War Employment

WHILE there are and will be a great multitude of economic factors affecting our operations, there will be but very little we can do about it other than to try to adapt ourselves to our environment. Presently, adequate and competent manpower is one of our major problems and has been one of the primary reasons for virtually doing away with certain functions, such as sales efforts; this situation coupled with the fact that we have practically no equipment to sell has produced a condition where most all sales organizations will have to be completely rebuilt. Our construction and service departments have likewise been depleted to the bone, but we have been able to carry on because of restricted construction possibilities with very limited supplies of materials. Our customers have been far less demanding in the number and extent of service requests and we have thus been able to get by with the inadequate forces.

Soon following victory, every business concern and employer must be ready to take back his former employees who left for military service. In addition, employers are going to be confronted with a further hiring requirement of people released from munitions plant, war industries, and government offices. If this is not done, the country will again be confronted with a devastating problem of unemployment. For private enterprise to be able to successfully handle this problem, the government must plan and cooperate by timing and spreading its demobilization of military and war workers in a manner that will permit private industry to get back onto peace time operations and somewhat gradually build up its operating forces.

Reconstruction of forces in large organizations is not an easy job nor one that can be done overnight. Selection and training of new employees requires time. Our executives should become conscious now of the fact that our working forces will have to be greatly enlarged, doubtless much beyond the point we may presently consider necessary to cover our normal or expected work. This situation is certain to become a major problem confronting private industry, but it is up to us to solve it much more successfully than we did some years after the last war, if private enterprise is to maintain its position.

Figures are frequently more impressive than words in conveying an appreciation of magnitude, so reference may well be made to the figures of military and war industry demobilization in comparison with pre-war employment, in the four western states, as shown in Table 2.

California and Washington run particularly high with 42% and 45.2% respectively for re-employment, as against the national average of 32.3%. Undoubtedly, much of this is the result of a great influx of war workers from other states, and there is but little probability that the majority of them will return to their original localities. Therefore, our re-employment problem here in the West is going to be more difficult than in many other states.

It appears only logical that all of us who are large employers should prepare figures showing by departments, the extent of re-employment we can take on, based upon our expected business increase over 1940. Such re-employment will require much training, and departments for this purpose will have to be created or enlarged. Doubtless, during the coming years we will do much more in the way of auxiliary and staff work than was considered necessary a decade ago. This work will create a number of additional jobs. The real test for employment, however, will, as before, come some years later; after we have satisfied the great consumer demand for goods which during the first few post war years will provide a place for all our manpower. It is really for meeting this somewhat distant problem that we and the entire country must bein to plan.

TABLE 2. NUMBER OF PERSONS TO BE DEMOBILIZED AFTER THE WAR

	Pre-War Employment April, 1940	*Armed Forces (a)*	*Industrial Workers (b)*	*Total*	*Per Cent of 1940 Employment*
California	2,525,300	482,000	577,600	1,059,600	42.0
Washington	607,700	115,600	158,900	274,500	45.2
Oregon	389,800	70,600	58,500	129,100	33.1
Arizona	150,200	32,300	1,100	33,400	22.2

(a) Assuming 8,500,000 national total, and leaving 2,500,000 in armed forces. Assuming men return to state from which they were inducted.

(b) Forecasts of the number of industrial workers in specialized munitions production that will have to seek new jobs in the transition period of demobilization, based on a national total of 6,000,000. This underestimates the number that will be disemployed.

Oklahoma Natural Has Victory Lunch Display

A "PACK-A-LUNCH for Victory" display in a show window of the Oklahoma Natural Gas Co.'s district headquarters in Oklahoma City, Okla., has attracted much attention.

Recognizing that the "carry-your-lunch" habit is a part of today's patriotic effort, the home service department of the company's Oklahoma City district, Miss Pauline Sherwood, director, has placed some suggestions in the window to show that "by spending only a few minutes each day in careful planning, it is possible to have a lunch-box meal that is attractive, taste-tempting, full of health-giving foods, and much more economical than one bought at a crowded lunch counter and eaten hurriedly." A placard directed to the war worker, and which is placed behind the display of cellophane lunch boxes, reads, "Man, oh man! I really feel like working after eating these lunches my wife has been packing lately. Me, to. Our wives must be using those real good recipes tested by the home service department of Oklahoma Natural Gas Co."

In the center of the window is shown a lunch box such as school children carry, and some of the food articles suggested for such a box with the message: "Look what's cooking for me! Egg salad sandwich, tomato wedges, oranges, cookies and hot chocolate."

At the right is a display for office workers showing a convenient carrying bag and this message: "Vitamins in the bag. Pack your lunches in a totin' poke bag and smile, smile, smile. Off to the office with a packed, pep-lunch makes life worth while."

The window display creates a lively demand for "lunch box meals" recipes and suggestions carried in literature of the home service department of the company for general distribution.

Pipe Line Construction News

New Gas Production

• A wild gas well near Velma, Stephens County, Okla., which went out of control November 10 and killed a man, was shut in November 14 to open a new deep zone for the district. The well was producing at 65,000,000 cu. ft. per day from the upper Bromide at a depth of 6124 ft.

• A new gas producing area for north Louisiana was opened recently with the completion of an estimated 45,000,000 cu. ft. producer of dry gas near Ruston, La, by the Arkansas-Louisiana Gas Co. The new producer, the W. F. Giles No. 1, is a mile and a half north of the Lide and Greer Causey No. 1 which was drilled in 1937 with a good gas show but killed by water.

• Predicted to pour 3,959,000 cu. ft. of gas daily into war plants, a gas well in the Monongahela valley complete its first day of production recently at a farm in Elizabeth, Pa. The gas was struck after a two-month drilling operation that penetrated levels of Gantz sand at 2248 ft.

The drilling was done by Wasson & Co. of Pittsburgh, oil and natural gas producers. Workmen immediately connected lines from the well to People's Natural Gas Co. lines feeding war plants in the Glassport and Clairton districts.

• Phillips Petroleum Co. of Bartlesville, Okla., will soon begin spudding for the first oil drilling in the state of Oregon. Phillips has obtained leases on 30,000 acres in Coos county.

Pumps have been installed and drilling contracts have been let to Bell & Loffland, Los Angeles contractors who have been setting up equipment for the past two months.

The company recently procured by assignment from R. S. Rhoades of Los Angeles a block of oil and gas leases located in townships 25, 26 and 27, south of ranges 13 and 14 west of Coos county.

From the sectional measurement the depth is estimated at 10,000 ft. Equipment now in the field is estimated at a cost of more than $135,000, while drilling will probably exceed $70,000.

• A natural gas well has been drilled a mile and an eighth off shore in Lake Erie by West Petroleum Co. of Toronto, and company officials declare that if the well continues to provide a steady flow of gas others will be drilled in the same area in the spring of 1944.

This well was drilled off Port Alma, Ontario, in October and November and it is believed to be the largest lake well yet drilled. The drilling contract was handled by Stover & Rawlins of Chatham, Ontario, with drillers having to buck extremely difficult weather in the latter stages of the job.

On one occasion they were stranded on the drilling pier, constructed 5950 ft. off shore, for a full 24 hours when stormy weather prevented a tug from getting alongside to take them off. None suffered any serious effects from the day-long stay, but all were wet and cold and hungry when rescued.

• Drilling finished at 1285 ft. Officials of West Petroleum Co. expect production to be around 1,000,000 cu. ft. a day. Before shooting had been completed, there was a measured flow of 300,000 cu. ft. a day from two upper pays, and an undetermined additional flow from the lower horizon of another formation.

• J. E. Douglas of Harris county, Texas, has applied for a permit to lay a pipe line from the Mercedes field in Hildago county to the new Willamar field in southwestern Willacy county. It is proposed to pipe gas to the field for fuel.

• With the exception of eight miles, all of the 156 miles of 26-in. for looping the **Panhandle Eastern Pipe Line Co.** system in Kansas has been completed by Bechtel-Dempsey-Price. Relaying of 22-in. near the Sneed, Tex., station is getting under way. This pipe was taken out of the ground near the Hansford station in the vicinity of Guymon, Okla.

• The **Ohio Fuel Gas Co.** is laying 24 miles of 8-in. coupled line to connect the Wellington and Pittsfield pools in Lorain and Medina counties, Ohio., to existing lines running into their Ashland and York compressor stations. The line will have a capacity of 24,000,000 cu. ft. on installation of additional equipment at the York station. Contractor for this line is Harry Strodtbeck.

• Work is being completed for laying four miles of 8-in. pipe for **Zenith Gas System, Inc.**, according to an announcement by W. L. Woodward, president. The line starts at the Alva, Okla., takeoff on the company's transmission line and extends north. This new line will replace a 6-in. line which is being taken up and relaid parallel to another 6-in. line o fthe system.

• Additional natural gas for Dallas and other cities in the 4500-mile pipe line network of the **Lone Star Gas Co.** became available last week when a 35-mile extension loop was completed from the Cayuga gas field in Anderson county, Texas, to a gate 9.5 miles east of Alma, Ellis County, Texas, Julian L. Foster, general superintendent and chief engineer of the company, announced.

• **A. O. Smith Corp.** will furnish 900 miles of 24-in. pipe for the **Tennessee Gas & Transmission Co.** line. The order is for approximately $10,000,000 and calls for 150,699 tons of 24-in. welded pipe of ¼-in. wall thickness.

River pipe for the Tennessee line 24-in. natural gas line will be coming out of mills of **National Tube Co.** this month. During the first quarter of 1944 these mills will be making 300 miles of 9/32-in. wall thickness pipe for the project.

• The federal power commission November 29 received an application filed under Section 7 of the natural gas act by the **New York State Gas Corp.**, New York, N. Y., to construct and operate 127 miles of 12¾-in. natural gas transmission pipe line extending from a point on the boundary line between Green county and Wetzel county, W. Va., in a northeasterly direction to a terminal point in Clarion county, Pa.

The proposed line will connect at the Pennsylvania - West Virginia boundary with a 12¾-in. pipe ,line which **Hope Natural Gas Co.** proposes to construct and the terminus in Clarion county will connect with the 12-in. pipe line now leased and operated by applicant and proposed to be purchased by applicant from Peoples. That line extends approximately 90 miles to a point in Potter county, Pa., where it connects with the southern extremity of the applicant's existing transmission pipe line system, the application states.

Purpose of the construction is to enable the applicant to receive gas which it proposes to purchase from Hope Natural Gas Co. at the Pennsylvania-West Virginia state line and to deliver such gas into its existing pipe line system for resale to other gas companies operating in Pennsylvania and New York.

The commission also announced receipt of an application filed by Hope Natural Gas Co., Clarksburg, W. Va., for authority to construct and operate (a) 18 miles of 12¾-in. transmission pipe line extending from Hope's existing Hastings compressor station in Westzel county, W. Va., to the West Virginia-Pennsylvania boundary line terminus of the proposed line of New York State Natural Gas Corp. and (b) two additional steam-driven natural gas compressors at the Hastings compressor station aggregating 4000 hp., with additional boiler and auxiliary equipment.

Through the proposed facilities the Hope company will deliver out of its general sources of supply all of the natural gas which New York State Natural Gas Corp. will require to meet its present and future market demands, over and above the quantities of gas which that company may produce and purchase in northern Pennsylvania and western New York. It is expected that in order to supply its present and future market demands, New York State Natural Gas Corp. will call upon Hope for daily quantities of gas up to 50,000 Mcf. per day; that this gas will be taken at a high load factor, and that annual volumes will approximate 12,000,000 Mcf. per year.

• To increase deliveries along the gulf coast, the United Gas Pipe Line Co. of Shreveport, La., is carrying out a construction program now nearing completion.

Through these construction projects the company expects to increase delivery capacity of lines to Mobile by 19,000,000 cu. ft. daily to meet regular demands and in addition provide 13,000,000 cu. ft. on peak days to meet requirements of the Mobile Gas Service Corp.

Included in this program is construction of a 100 hp. addition to the Tallulah compressor station, bringing its total horsepower of that unit to 4000. This enables the company to increase deliveries into the Jackson compressor station for the Monroe-Jackson main line. Three large customers on the Magnolia, Miss., line will receive gas from the Monroe-Jackson main line through construction of 2000 ft. of 2-in. line and 7000 ft. of 4-in. line. This makes it possible to lower pressure on the Magnolia line and enables the Jackson station to put the gas into the Jackson-Mobile line at high pressure. The Jackson compressor station will have four 160-hp. engines added to its present capacity.

A 1350-hp. station was under construction in October at Hattiesburg, Miss., to increase pressure on the delivery line to Mobile.

Post-war NOTES and NOTIONS

By STANLEY JENKS

British Foresight

The British gas range manufacturers have an organization corresponding to the Range Manufacturers' section of the AGAEM. They call their group the Gas Stove Manufacturers Panel. All the leading British range manufacturers are members.

In Great Britain, as in this country, one of the obvious postwar needs in the gas industry is a greater appliance standardization. which, in the last analysis, means that the individual utilities must get off their high horses and quit bewildering manufacturers with non-standard requests, if they want to make it easier for themselves in the coming postwar battle of the fuels. (Better appliances at lower cost.)

Also in Great Britain they have an Institution of Gas Engineers, which has said its piece on postwar standardization of appliances in a report issued by a special committee appointed to study the situation.

The Gas Stove Makers Panel has in turn "devoted careful thought to the best method of carrying into effect the recommendations of the committee's report, which agrees closely with its own finding." Among other things, in its very interesting report, the postwar appliance committee of the Institute of Gas Engineers stated that "adequate incentive to progress in design and construction" is necessary. The manufacturers in their turn thoroughly concur in this. It endorses their own policy of rationalization whilst maintaining their individuality.

Which seems like an excellent example of not leaping before you look into the flow of postwar poppycock which is at present deluging the American scene.

Our Friends

It is axiomatic in all businesses that you live off your friends. Most utilities, theoretically at least, recognize this all-important truth under the nebulous heading of "public relations." To the gas utility sales executive it has a meaning of its own. It means anything and everything that can be done to build up a public appreciation of gas service so that it can be more easily sold in all its applications *at a profit.* The front office ideal is a situation where from the meter reader with shining shoes, neatly pressed clothes, and engaging smile; the courteous gas fitter eagerly welcomed wherever he goes scattering seeds of future goodwill for the company in his wake, to the ever-obliging complaint-er-adjustment personnel in the office, all is sweet and smooth.

But, human nature being what it is, the real invariably falls short of the ideal. The adjustment clerk blames the new automatic water heater for the high bill. The vice-president's wife, over the bridge table at the country club, brags of the high cost of her gas heating. A resourceful sales manager, therefore, while inviting the cooperation of other departments, nevertheless makes customer goodwill a major objective in his own promotional program. He knows this customer confidence and friendship cannot be won overnight with a price tag or a newspaper advertisement. It is the product of years of cultivation.

The war years have taken the heat off appliance selling, but not off the need for maintaining a friendly relationship with the customers who will constitute the postwar market. Some of our more alert gas companies—Los Angeles and Chicago come to mind as I write—are nursing their postwar markets now. Salesmen are visiting customers, discussing gas service, explaining today's limitations, *and asking questions.* Tomorrow's battle of the fuels is being won now in such places by a commonsense application of tried and true fundamentals, rather than wistfully waiting for (1) the manufacturers of gas appliances to brew a magic potion matching today's asinine advertisement or (2) postwar customers, their pockets bulging with war bonds and with unlimited appetites for gas appliances, to take all that can be manufactured.

Postwar Home Building

Talking about asking questions, the Northwestern National Life Insurance Company has just released a 25,000-person survey of planned postwar purchases.

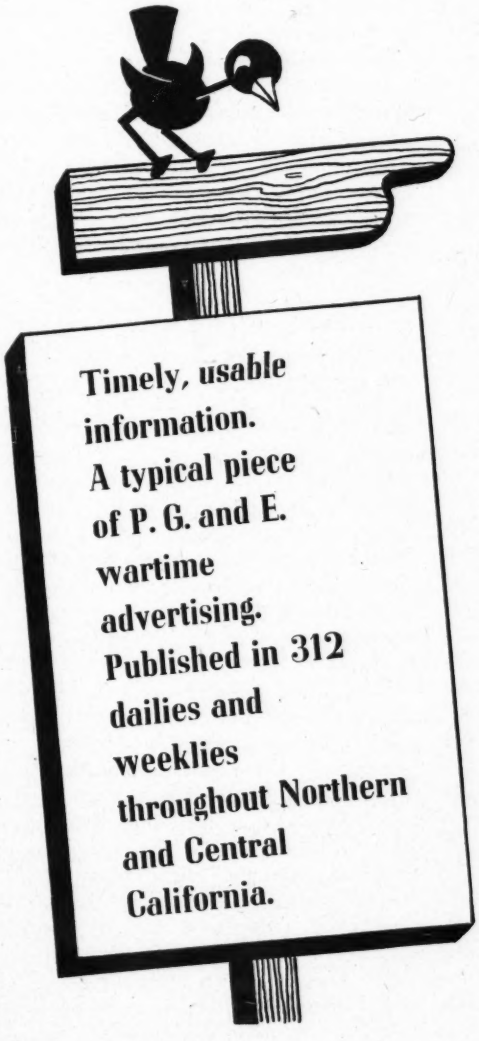
The listings ran (1) automobile, (2) new homes, (3) radio, and (4) an extensive trip either at home or abroad.

Most of those surveyed listed more than one major purchase planned, and it is significant that two-thirds of those planning to get themselves a home propose to build a new one rather than buy a prewar job. How much gas will be used in these postwar constructed homes?

The Industrial Machine

If it is conceded that the only proper way to pay for this war is to work like blazes to recreate the wealth being destroyed, then a tremendous share of responsibility must be assumed by our sales planners. The more merchandise is sold, the faster the industrial wheels will revolve, and the sooner the war-created deficit will be cleared up. Some of my New Dealer friends question my anxiety about getting the war, or at least some of it, paid for. When you owe money to yourself—meaning the public debt—you don't really owe anything. Nuts! If that is so, let's all get a certified printing press of our own, register its output with the government, and quit worrying about anything beyond the price of ink and paper.

Seriously, the life blood of the United States is its ability to create wealth by our working hard and producing materials intensively. Making two blades of grass grow where one grew before. The real brake on our industrial system can be a tax rate that kills incentive or deters initiative. Our post-war problem, therefore, must be solved by creating as soon as possible a maximum of real wealth, in order that the amortization of the war costs won't buckle the machine or, worse still, give the starry-eyed lads an opportunity to yell for a new machine with either a fascist or communist name plate on it.

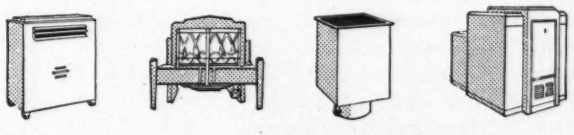

Timely, usable information. A typical piece of P. G. and E. wartime advertising. Published in 312 dailies and weeklies throughout Northern and Central California.

NOW IS THE TIME TO RID YOUR GAS HEATING EQUIPMENT OF DUST AND DIRT

For clean efficient heat this winter give fuzzy-wuzzy dust a good brush-off in your gas heating equipment.

Dirt and fuzzy lint is drawn along the floor by air circulation into your floor furnace pit or the cold air returns of your central furnace. Remove floor grills and clean out this dust with brush and dustpan or use a vacuum cleaner attachment. If you have a forced-air furnace, oil the fan shaft and motor. Check the fan belt and see that it is not too loose. Replace your old filter pads if they are clogged with dust. Do this and you will get more heat for less gas usage. New filter pads are available without priority.

Then, of course, be sure to have authorized gas heating repair dealer check up on your gas heating equipment at the first sign of trouble. Keep healthfully warm this winter but do not waste gas fuel.



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STORING GAS UNDERGROUND

1. Summary of Projects by States

By O. D. HALL

Gas Staff Reporter

THE USE of underground storage of natural gas has played on important part in the war effort, reports the Research and Coordinating Committee of the Interstate Oil Compact Commission as a result of a survey it has made in nine states.

The report, which was compiled for publication in the next Interstate Oil Compact Quarterly Bulletin, covers projects in Arkansas, California, Kansas, Kentucky, New Mexico, Ohio, Oklahoma, Pennsylvania and Texas. The Research and Coordinating Committee is composed of Dan O. Howard, Oklahoma, chairman; F. R. Frye, Michigan, vice-chairman; E. G. Dahlgren, Oklahoma, technical secretary; Alec M. Crowell, Arkansas; Dr. F. M. Van Tuyl, Colorado; S. F. Peterson, Illinois; Daniel J. Jones, Kentucky; L. B. Taylor, Kansas; H. W. Bell, Louisiana; John M. Kelly, New Mexico; Dr. S. T. Yuster, Pennsylvania, and J. K. Baumel, Texas.

Tremendous demands for natural gas, resulting from the war effort, "might not have been met in the Appalachian area during the past year and a half if the use of underground storage had not come into common practice." These demands, particularly on peak days, were so great that it would have been impossible in the past two winters to have supplied all of the essential markets with gas if storage had not been available."

The salvation of the natural gas industry in the East has been the use of underground storage, the report asserts. "Conservation has been furthered because it is possible to transfer gas into storage from highly competitive areas where flush production might encourage uneconomical use of the product on account of a need for an immediate market. Underground storage has also been the boon to the small stripper production of many of the Appalachian gas wells which can only be operated economically if they are used 365 days a year, since their daily production has been greatly reduced in recent years."

Arkansas: Enumerating underground gas storage projects by states the report first cites the Lavaca field in Sebastian county, Arkansas. This is connected to a 10-in. transmission line which extends east about 15 miles to the market. The line also extends west about 30 miles. Gas is gathered along the west line from four additional gas fields whose rock pressures, with one exception, exceed the Lavaca field. The one exception is a small field on the west extremity where gas is picked up by a small compressor unit and is discharged at such pressure as may be required for repressuring operations. The Lavaca field is repressured during off-peak hours, days and months. This enables a building up of a standby both in pressure and volume, to draw upon only when other sources were inadequate. The Southern United Gas Co. of Fort Smith is utilizing the field for handling peak loads

California: Conservation was an important factor in deciding on underground storage near Los Angeles, Calif., in the Playa Del Rey field. This field was selected because of its location near the load center of metropolitan Los Angeles, its proximity to a natural gas trunk line, its geological structure and the near depletion of its producing zone.

First gas was injected in this field on October 12, 1942. Gas is piped to the field by the Southern California Gas Co., and is injected through several wells. Gas injection began at the rate of approximately 4,000,000 cu. ft. per day. In December, 1942, it was being injected without compression at line pressures between 125 and 165 lb. per sq. in.

"With Southern California war industries dependent almost entirely on natural gas for fuel," says the report," the variations in seasonal demands for fuel provided stimuli for seeking ways and means of storing gas to provide additional gas during the winter season, thus insuring an adequate supply for the demand of war industries. In deciding on underground storage near Los Angeles, conservation was an important factor. Little gas is being wasted in California but even some of this waste will be reduced by storing the gas in summer months when the gas line from the San Joaquin valley can carry more than the demand."

Kansas: Two companies are engaged in underground storage operations in Kansas, the committee report reveals. The Cities Service Gas Co. is operating four projects—North Welda, South Welda, Craig and Boyer.

The maximum pressure in the Welda storage field when it is full, is 280 lb. and maximum amount of gas drawn out of the North Welda field in any one day was 56,805,000 cu. ft., on December 13, 1940. Maximum amount withdrawn from the South Welda storage in any one day was 54,177,000 cu. ft., on December 1, 1942. Maximum capacity of the two gas lines running north out of the Welda storage is about 103,000,000 cu. ft. per day.

The report states that the Union Gas system is successfully experimenting with two projects in Kansas.

Oklahoma: The Oklahoma Natural Gas Co. is very active in searching for suitable reservoirs for natural gas storage. The depletion of important reserves in the vicinity of the Tulsa market forced the transportation of gas over considerable distances in order to supply the demand. One project, the Bixby gas storage reservoir, was put in operation in 1937. This reservoir, involving about 300 acres, 25 miles from Tulsa, was unprofitable and finally abandoned, the report stated.

However, the company is now developing a new project in Osage county which utilizes the Burgess sand as the storage horizon. Storage there was begun about April 24, 1942, and it was estimated that one billion cu. ft. would be in storage by November, 1943. The formation pressure has risen from 13 lb. to about 150 lb. The storage reservoir is expected to have a delivery capacity of about 25,000 Mcf. per day and will be used only during peak demands on Tulsa or during emergencies resulting from pipe line failures.

The Cities Service Gas Co., has used the Layton sand intermittently since 1930 for underground natural gas storage in the south end of the Oklahoma City, Okla., field. The Phillips Petroleum Co. is utilizing one well in the Oklahoma City field for underground storage. The Southwest Natural Gas Co. of Ada, Okla., since 1928, has used a depleted natural gas field north of Ada for underground storage. The Northern Oklahoma Gas Co. of Ponca City, Okla., has been surveying the possibilities of gas storage

in old depleted pools near Ponca City.

Pennsylvania: The report states that natural gas operators in Pennsylvania have utilized underground storage to a great degree. It is estimated that 20 underground storage areas are in use in Pennsylvania and at least five more are being conditioned for storage during the present year. Gas companies which have developed underground storage in Pennsylvania include: The Peoples Natural Gas Co., the New York State Natural Gas Corp., Manufacturers Light & Heat Co., and North Penn Gas Co.

Referring to underground storage in Texas the report says: "The Lone Star Gas Co. formerly operated gas storage projects in the Cheaney field in Eastland county and Petrolia field in Clay county, but no gas has been stored in the Cheaney field since 1928 and the Petrolia field since 1941."

New Mexico: The only underground gas storage project reported from New Mexico is the Keyes repressuring development in Eddy county, operated by the Southern Union Gas system of Dallas, Tex. This 400-acre project with four wells has proven successful, the committee reports. On a peak day last winter a volume of 100 Mcf. per hour was withdrawn. The gas is obtained from the Lea County Water Co. through a pipe line from the Hobbs field. Compressors are not needed for injection, although a 400-hp. compressor is available for use.

Kentucky: The Central Kentucky Natural Gas Co. began using underground gas storage in Kentucky in 1919, utilizing the Menifee field. A total of 6,396,642,000 cu. ft. of gas was stored up to January 1, 1931. Storage operations were then discontinued, as gas was obtained elsewhere.

Ohio: In Ohio the Ohio Fuel Gas Co. of Columbus began investigating underground gas storage possibilities in 1935. As a result the Benton and Perrysville area projects were developed. The Clinton sand is utilized at an average depth of 2200 ft. in the Benton area and at about 2600 ft. in the Perrysville project. When storage began in 1936 in the Benton area the rock pressure averaged 80 lb. In December, 1940, the pressure had risen to approximately 575 lb. At the beginning of storage in the Perrysville area the rock pressure was approximately 120 lb. In December, 1940, the pressure had increased to about 610 lb. The two projects contain 119 storage wells.

The Manufacturers Heat and Light Co. utilizes the Brinker field in Columbiana county, Ohio, for underground storage.

2. Field Tests for Determining Injection Volumes, Pressure and Plant Capacity

By JO H. CABLE

Consulting Petroleum Engineer, Wichita Falls, Texas*

A PROPOSED gas-injection project must necessarily include facilities for the injection of gas or air into the producing horizon. Designing suitable equipment requires a general knowledge of the installed producing facilities and an accurate evaluation of the volumes and pressures necessary for a successful and profitable venture. Preliminary field tests and the assembling of comprehensive data are necessary.

All available cores, sand chips or sand cuttings should be obtained for examination. Samples of the produced gas, oil and water should be collected for analysis. Accurate maps of the property showing the location of all wells (operating, abandoned and plugged); subsurface structure, tank batteries, pumping units, pumping powers, houses, oil, water and gas lines, and any unusual topographical features are necessary. A record should be made of casinghead, separator and gas system pressures. The availability of makeup gas and fuel should be known. While these data are being collected it is advisable to examine the installed power units for a determination of whether there is or will be an excess of power which might be used in conjunction with the projected operations. The general condition of all lease equipment, including casing and tubing, should be on record. An examination should be made to determine whether there has been any corrosion; if the use of air is anticipated, this is particularly important, and laboratory tests should determine the reaction of air with the fluids present in the reservoir. The pumping practice, with particular regard to the position of the tubing perforation, will impart valuable information. The possibility of faulty casing seats, deteriorated or leaky oil strings, and replugging of abandoned holes should be considered.

The foregoing information has a decided influence on the type of project, and is a necessary background for the design of the equipment to be used in compressing and distributing the medium for repressuring on an air or gas drive.

*Paper for presentation to Division of Production, before the Twenty-fourth Annual Meeting of the American Petroleum Institute, at the Palmer House, Chicago, Ill., Nov. 9, 1943.

Injection Volumes: The amount of gas or air to be handled both in the beginning and during subsequent operations is a factor which must receive considerable attention. It is necessary that a measurement be made of the daily production of gas, oil and water of each of the wells in the group under consideration, and of all offset wells completed in or exposed to the injection horizon.

The first problem is a determination of the initial injection volume required to get the project under way. If a precedent has been established in the area it may serve as a guide. Usually 25 to 50% of the current gas production is selected as the initial injection volume to be distributed into the producing horizon. However, if the gas production is negligible, some other method must be used for estimating a proper initial injection volume. Core analysis will assist in determining the void space to be filled. However, if these are not available, production records may be used in conjunction with the sand volume to estimate the void space.

The initial injection volumes per day can be scheduled so that the void will be filled over a reasonable period of time. The initial volumes per input well in common use vary, some being as low as 300 cu. ft. per day and others as high as 2000 cu. ft. per day per vertical foot of exposed producing horizon. Such factors as previous experience within the area, difference in well spacing, sand characteristics and saturation conditions in the reservoir bring about the difference. The amount and rate of increase of injection volumes to a maximum depends on the reaction of oil production stimulated by the gas injected into the individual wells.

The next factor to be considered is the ultimate maximum volume. In gas-injection projects begun relatively early in the life of the field, the required daily injection rate will not ordinarily exceed 50% in excess of the aggregate daily produced volume of gas. A more depleted project, where gas production has declined considerably, might require an injection rate as high as the previous maximum gas production. If oil production is or has been restricted

or prorated, this factor should be considered.

A method of checking the maximum volume required is by estimating the future maximum oil production and multiplying it by the anticipated gas-oil ratio at that time, or by estimating the oil production at the economic limit and multiplying it by the anticipated gas-oil ratio at that time. Produced gas-oil ratios usually increase 100 to 200 cu. ft. per bbl. annually with controlled injection.

Pertinent to the foregoing calculations is the availability of makeup gas —natural, inert or manufactured—for the present and for the future. Its volume, pressure and cost should be obtained and estimated for the future. The possible use of other than lease gas for fuel should be considered.

Required Injection Pressures: After the required volumes have been estimated, it is necessary to determine the maximum pressure required to inject these volumes into the pay horizon in order to design adequate compressor and auxiliary equipment.

Bottom-hole pressure should be measured in the probable input wells, and in enough other wells to determine the maximum reservoir pressures. If the permeability of the formation is exceptionally low it may be advisable to plot buildup-pressure-vs.-time curves on several wells.

A convenient method of obtaining pressures is to check fluid levels and casinghead pressures after a well has reached equilibrium.

The pressure required for injection usually runs 10 to 25% higher than the bottom-hole pressure, although in exceptionally tight formations it might be as much as 100% higher. Inasmuch as the higher pressure is mainly due to friction in the sand, it will be in proportion to the injection volume—and higher proportionately with lower permeabilities. Exceptionally high injction pressures may be due to the Jamin effect where fluid is present and the injection of gas is irregular, or to clogging of the sand pores. In deep projects the weight of the column of gas materially will reduce the required pressure at the surface of the ground.

The use of a test plant to obtain injection pressures is most satisfactory, but not always necessary. In some sands where conditions are uncertain, trial injection with various volumes is the only sure way of determining required pressures. Packers may be set on tubing to segregate less permeable sections of the producing horizon and determine maximum pressures. Care must be used to have the hole pumped clear of fluid, or patience must be exercised to allow the test to continue for a period long enough at a given injection volume to be sure the fluid has been excluded from the bore hole.

A recording pressure gage on the injection well during the test is advantageous in arriving at the proper conclusion, and should be used at various and maximum injection rates. It will indicate the clearing of the fluid from the bore hole, or what is known as the "pressure breakdown," and will show actual pressure required. Back-flowing the trial injection well for a few minutes will sometimes clean the sand face and decrease the indicated required pressure. In high-pressure injections the dew point should be controlled to prevent the formation of hydrates and consequent stoppages.

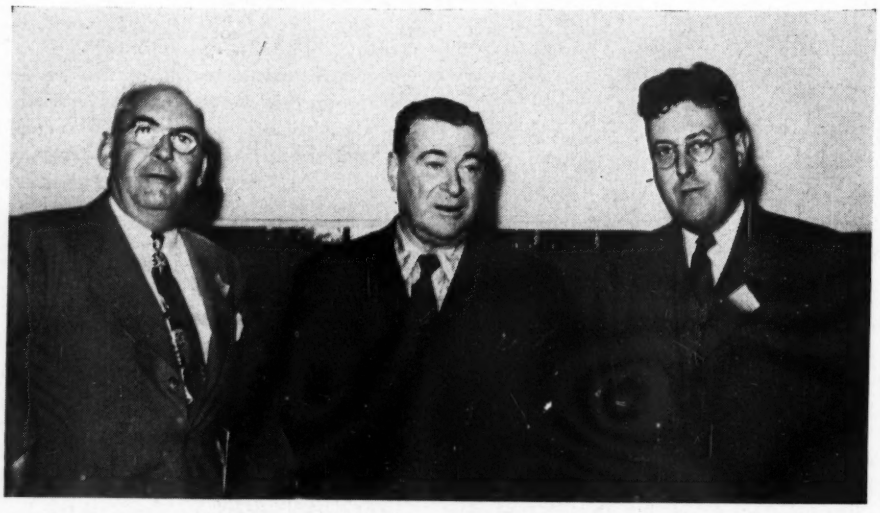
After the approximate required pressure for an initial injection has been determined it is necessary to decide whether an endeavor should be made to increase the bottom-hole pressure. Generally, during subsequent operation of the project, an overall formation-pressure decline will occur; but, inasmuch as increasing volumes will be required, subsequent injection pressures will decline slowly. Therefore, the indicated initial maximum pressure is usually adequate throughout the life of the project.

In some projects it has been found feasible to flow production as a result of bottom-hole-pressure increase.

Increased production rates are mainly achieved by the volume injected; however, viscosity and surface tension of the crude oil and differential-pressure effects are improved with higher pressures. Pressures necessary at the surface are a function of the required volumes; they are a reflection of reservoir conditions and a guide for the operation. The difference in required pressures for wet gas, dry gas, or air is very slight.

Plant Capacity: After the required volumes and pressures have been determined, the designs of a compressor plant can follow. The compressor and auxiliary equipment should have a capacity equivalent to the maximum volume of gas or air to be handled during the life of the project, as well as a pressure range from the minimum probable lease operating pressure to maximum injection pressure with sufficient stages of compression to operate efficiently, economically and with flexibility. It is frequently advisable to use more than one compressor unit, especially in air-gas injection projects, so that explosive mixtures are not compressed.

Conclusion: The field tests necessary for the design of a gas-injection project include the determination of reservoir characteristics as they pertain to the amount of displacement necessary for profitable results, the required volumes of injected gas to obtain this displacement, and the availability of the necessary injection medium.



Testimony of the important role America's gas appliance manufacturers are playing in the swelling production of the implements of war is to be seen in the photograph (right) showing John E. Bogan, war contract coordinator and general sales manager for Cribben & Sexton Co. of Chicago, peacetime makers of Universal gas ranges, and (left) James J. Marcus, Universal southern representative, photographed on the speaker's platform with Andrew Jackson Higgins (center) at the dedication ceremonies of the new Higgins aircraft plant in New Orleans, La. The Higgins Aircraft Corp., a subsidiary of Higgins Industries, Inc., was recently awarded a government contract to build the C-46 Commando airplane to supplement production on this vital cargo ship from the four Curtiss-Wright plants. Cribben & Sexton, in addition to holding other vital war contracts, is building parts and sub-assemblies for this C-46 Curtiss-Wright ship.

Electric Utility Tax Bill Up in Third Quarter

TOTAL taxes charged to electric operations of the larger privately owned electric utilities in the United States in the third quarter of 1943 were repoeted to be $162,738,000, as compared to $156,197,000 in the third quarter of 1942, an increase of 4.2%, according to a statement issued in November by the Federal Power Commission in its quarterly series entitled "Statement of Taxes, Dividends, Salaries and Wages for Class A and B Privately Owned Electric Utilities in the United States."

Total dividends for the third three months of 1943 amounted to $95,624,000 as compared with $83,513,000 in the same period of 1942, an increase of 14.5%, the report shows, while salaries and wages in the third quarter of this year increased 6% to $126,916,000 from $119,674,000 in the third three months of 1942. The statement points out that in reporting salaries and wages charged to electric operations certain of the respondents include salaries and wages of other utility departments, and others do not include charges to clearing accounts.

In the federal tax bracket, excess profits taxes increased 27.9% to $44,801,000, income taxes were down 8% to $45,372,000 and other federal taxes increased 5.6% to $16,226,000, bringing the total federal taxes for the third quarter to $106,399,000, an increase of 6.7% over the total of $99,685,000 in the third quarter of 1942. State and local taxes decreased 0.3% to $56,339,000 under $56,512,000 in the third three months of 1942.

Dividends on preferred stock in the third quarter of 1943 were $29,470,000 or 6% above the $27,800,000 figure for 1942, and common stock dividends increased 18.7% to $66,154,000 from the 1942 figure of $55,713,000.

■ ■

AGA Enlarges and Extends Advertising Program

The American Gas Association's Committee on National Advertising has added **House Beautiful, House and Garden, True Story, Parents', Architectural Forum, American Builder** and **Building Age** to its media list, now extended to the end of 1944.

The basic list of magazines presently being used consists of **Saturday Evening Post, Life, American Home, Better Homes and Gardens, Ladies' Home Journal** and **Good Housekeeping.**

The first insertions in the new magazines added to the list will appear in **House and Garden** for January, 1944, and the February issues of **True Story, Parents'** and **House Beautiful.** Advertisements in **Architectural Forum** and **American Builder** and **Building Age** will start with the July, 1944, issues of those magazines.

■ ■

Three Gas Companies Sold In North Carolina

Sale of three gas companies in North Carolina, all holdings of the Consolidated Electric and Gas Co., has been approved by the North Carolina State Utilities Commission. The companies involved are the Raleigh Gas Co., the Durham Gas Co. and the Asheville Gas Co. The new owner is C. B. Zeigler of Gastonia, N. C., trading as the North Carolina Public Service Co. Zeigler said the acquisition of the Raleigh, Durham and Asheville plants will increase the company's earnings to approximately $700,000 a year and its customers to 13,000.

Officers of the newly formed Indoor Climate Institute viewing the membership invitation brochure presented at a joint meeting of the board of directors and advisory council of the board, held at the Drake Hotel, Chicago, Nov. 4. Reading from left to right (seated): First Vice President T. A. Crawford, Timken Silent Automatic Division; President Paul B. Zimmerman, Airtemp Divison, Chrysler Corp.; Secretary R. E. Moore, Bell & Gossett Co. (Standing): Treasurer E. N. McDonnell, McDonnell & Miller; Second Vice President L. N. Hunter, the National Radiator Co.

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Butadiene Plant Scheduled To Resume Operation

Southern California Gas Co.'s butadiene plant, shut down since November 9 for the installation of the "fumeless" water-cooling system and for other necessary repairs and rearrangements, is to resume operations on December 15.

When the full completion of heat exchangers is installed the plant will go into full production for the first time, manufacturing an estimated 35,000 long tons annually. (GAS, Nov., 1943, p. 29.)

■ ■

Gas Melts Steel for World's Largest Forging

In a recent report made by M. A. Washabaugh of Equitable Gas Co., Pittsburgh, Pa., it has been brought to light that the greatest mass of steel ever poured into one mould was heated in natural gas open hearth furnaces at the West Homestead, Pa., foundry of Mesta Machine Co.

The casting weighed 600,000 lb. and was poured simultaneously from four ladles, these ladles having been supplied from four natural gas open hearth furnaces. Well-laid plans were necessary to assure that there would be no hitch when pouring time arrived. This world's largest steel casting is now part of a 12,000-ton forging press in one of Pittsburgh's large war production plants.

Indoor Climate Institute Launches New Program

A NATIONAL program was launched in behalf of the heating, cooling and air conditioning industries at the first joint meeting of officers, directors and advisory council to the board of the Indoor Climate Institute held in Chicago last month.

Pointing out the job that can be done on an industry-wide basis, ICI President Paul B. Zimmerman said:

"Today, heat, next to food, is the most important factor affecting the health of Americans. The activities of the Indoor Climate Institute will include a far-reaching program of training and public education on improved living standards. The home owner will, for the first time, be able to understand and evaluate the many advantages obtainable through modern heating, cooling and air conditioning equipment properly installed. This will assure greater indoor comfort and health."

Headquarters of ICI will be in Detroit, Mich., but local authorized chapters will be set up in principal cities.

■ ■

Alaskan Gas Development

According to a late November report from Dawson Creek, the gas well of the Alaska High Gas and Oil Co. is producing now at the rate of 5,000,000 cu. ft. of gas daily. This is being used by the company for power, heat and light at a new camp site. Pipe line has been completed from the well to a new location three miles south of the Pouce Coupe river in Alberta. In addition, a third well was spudded in recently.

Kitchens Featured in 'Home of Tomorrow' Contest

THE third in the series of four "Home of Tomorrow" contests, sponsored by *McCall's Magazine*, were featured in the November issue with kitchens the subject. In an article by Mary Davis Gillies, interior decorating editor, the magazine's 3,500,000 readers were shown a Tried-and-True kitchen and a Day-After-Tomorrow Dream Kitchen, and the chief features and advantages of each were given. The contest closes Dec. 30.

In letters of 200 words or less, contestants tell which kitchen they prefer and why. The contest blank gave a floor plan of each kitchen, and illustrations of different ranges and refrigerators, and contestants were asked to check their preferences on electric range, gas range, ice box, gas refrigerator, electric refrigerator, electric dishwasher, kitchen cabinets, dinette furniture, sink, water heater and electric disposer.

It is expected that the trend in kitchen preferences will be indicated by the results of the contest, and *McCall's Magazine* will base future decorating articles on the answers given. $1950 in war bonds and stamps will be awarded on the kitchen contest; $9400 in war bonds and stamps will be awarded in all four contests, including a grand prize of $1600 in war bonds and stamps, for which those who enter all four contests will be eligible. Previous contests have been on living rooms and dining rooms and the fourth contest will feature bedrooms.

The Tried-and-True kitchen shown in *McCall's Magazine* has daffodil yellow walls, blue linoleum with a yellow stripe forming a border, and white cabinets and range. The range is big and workmanlike and the refrigerator is roomy. The easy-to-clean cabinets, with doors that don't show up all the boxes and cans behind them, have a spick-and-span look. A dishwasher and waste disposer are additional features of this cheerful, compact kitchen.

The Day-After-Tomorrow Dream Kitchen shows a large room, opening into the dining and living room area, giving a spacious look even to a small house. Its cabinets are plastic impregnated molded plywood, it has opaque glass walls and a view window over the sink. Its oven is counter-height glass and the cooking units are fitted with special square pots and pans. The no-stoop cabinets will save many a run in a stocking. The refrigerator of this kitchen has a glass door, but a solid door, matching the woodwork, could be substituted by those who don't feel they are tidy enough to have the contents of the refrigerator open to view.

■ ■

Texas Repressuring System

Plans for installation of a gas-repressuring system for the Slaughter pool in Hockley, Cochran and Terry Counties, Texas, are dnder ionsideration. Engineers and gasoline-plant operators are reviewing the practicability and cost of the project.

FPC Orders Company to Adjust Plant Accounts

THE federal power commission has directed the Public Service Electric & Gas Co., Newark, N. J., to show cause within 30 days why it should not be ordered to (1) eliminate $9,479,956.02 out of a total of $38,565,513.13 in writeups and other inflationary items in its plant accounts, principally through charges to earned surplus, (2) submit plans as to the specific accounts through which there shall be written off the $29,085,557.11 balance of writeups and inflationary items, and (3) submit plans for the disposition of an additional $29,328,210.96 representing excess of purchase cost over original cost of plant acquired as operating units or systems.

In the past the commission has required the immediate elimination, chiefly through earned or capital surplus, of inflationary items covered by (1) and (2). In many cases the commission has authorized amounts similar in character to (3) to be eliminated gradually through amortization over a period in the future rather than through immediate charges to earned surplus or other accounts. However, of the $29,328,210.96 in (3) the commission's staff has recommended, due to the circumstances surrounding the acquisition of one property, that $14,538,896.96 be written off at once.

In substance, therefore, the company has been ordered to show cause why it should not immediately eliminate $53,104,410.09 in writeups and inflation from its plant accounts and submit plans for the gradual elimination of $14,789,314 representing the difference between purchase cost and original cost of acquired properties. The order announced today states that the company's response "shall be in the form of an offer of proof and shall set forth with particularity the facts upon which it relies."

Over-all view of materiel display, Cincinnati Gas & Electric Co.

Army Equipment Display Put on by Cincinnati Gas

THE entire main floor and all display windows of the Cincinnati Gas and Electric Co.'s main office building were turned over to the Materiel Command, Army Air Forces, for a display of the military equipment manufactured wholly or in part in the area served by the utility. The exhibit extended from Nov. 11 to Dec. 7, and was free to the public.

Although no specific mention was made of the part that gas and electricity play in the production of the exhibits, the show was tied in with the voluntary conservation program, and an appeal was made to the visitors to conserve in the use of gas and electricity so that essential materials can be saved.

Largest items displayed included an Aeronca Grasshopper plane, an Allison liquid-cooled motor, two Wright motors, one of which was cut away to illustrate operation, and an opened parachute. A rubber lifeboat, sections of a Thunderbolt and captured enemy equipment were other features.

The show was believed to be as complete as that offered anywhere. Attendance was consistently good, and was most gratifying to the officers of the air force in Cincinnati.

Senate Resolution Demands Natural Gas Investigation

A GENERAL investigation by the federal power commission of the natural gas reserves of the country and their efficient utilization is called for in a resolution introduced in the senate by Senator John H. Overton of Louisiana.

The resolution (S. J. Res. 92) would direct the commission to employ experts and hold hearings and make an initial report to congress within 90 days and a final report in six months. Subjects proposed to be covered by the investigation would be:

1. The extent, location and availability of the known natural gas reserves in the United States, and the effects of the present and anticipated depletion thereof.

2. The nature, amount and location of the present and anticipated utilization of natural gas, the resultant economic waste and undesirable competition with and displacement of other fuels, and the feasibility of converting natural gas and its constituent hydrocarbons for chemical and other superior uses.

3. Such other matters relating to the production, transportation, distribution, sale and utilization of natural gas as may be helpful to the congress in determining what additional legislation, if any, should be enacted for the purpose of restricting unnecessary waste or depletion of natural gas reserves or the utilization of natural gas for inferior or otherwise undesirable purposes in competition with other fuels.

■ ■

AGA Manual Classifies Distribution Jobs

A manual entitled "Natural Gas Distribution Job Classifications" has been printed and prepared by the Southwest Personnel Conference of the American Gas Association, according to an announcement by Chairman M. V. Cousins, United Gas Pipe Line Co., Shreveport, La. The manual covers the functions and responsibilities, the minimum training and experience required for replacements under wartime emergency and the physical requirements for 118 job classifications found in all departments of natural gas distribution operations. It is for use in connection with Manning tables, replacement schedules, selective service requirements and any other use to which a job classification manual can be put. It was compiled by a committee headed by Oakah L. Jones, Oklahoma Natural Gas Co., Tulsa, Okla.

The books are bound and are available from AGA headquarters, 420 Lexington Ave., New York 17, N. Y., at a charge of $1.00 per copy to cover the printing cost.

■ ■

GE Announces Postwar Sales Reservation Plan

General Electric, in announcing last month its "reservation" plan, became one of the first industrial firms to establish a definite plan for easing the transition from wartime to peacetime production. The plan is for the post-war purchase of radio broadcasting equipment.

Prospective purchasers are required to deposit with GE U. S. war bonds according to the amount of equipment reserved for delivery. This "reservation" is not an order nor does the broadcaster have to sign a contract to buy. Equipment orders may be placed any time up to 90 days following the date when production and sales of commercial transmitters is authorized. To maintain his reserved position, a broadcaster must enter into a mutually satisfactory sales contract within this 90-day period.

■ ■

Canadian Coal Strike Brings Gas Heating Problem

Canada's recent coal strike brought a headache in its wake for the Windsor Gas Company, which serves the Ontario city of Windsor just across the border from Detroit. Many Windsor householders, unable to obtain coal and having furnaces adaptable to gas, simply began to use gas for heating despite a ban issued by the Canadian power controller's office in September, 1942. When gas-burning equipment was removed from convertible furnaces it was, in many instances, left on the premises of the consumer. Anyone handy with a pipe wrench could, without consulting the Windsor Gas Company, re-install the equipment. And this evidently was done in a number of cases.

The result was that the Canadian power controller, H. J. Symington, sent a letter of warning to Gordon D. Wickett, vice-president and general manager of the gas company, in which he said that if the practice of using gas for heating was not discontinued he would have no alternative but to insist on prosecution of both the user and the company. Because of this, said Wickett, it would be necessary for the company to inspect homes where it was believed gas was being used contrary to regulations.

■ ■

SCMA Changes Meeting Date for December

The regular monthly meeting of the Southern California Meter Association, which is ordinarily held the third Thursday of every month, will hold its December meeting on Friday, December 17, W. J. Kennedy, program chairman, announced. All future meetings, however, will continue to be held as in the past —on third-week Thursday.

The program to follow the dinner consists of three papers as follows:

1. "Bellows Type Meter" by L. P. W. DesBrisay, Southern California Gas Co.

2. "Field Experiences With Bellows Type Meters" by Emerson L. Kunn, Dow Chemical Co.

3. "Parabolic and Bell Type Meters" by A. J. Norman, Southern California Gas Co.

■ ■

Cities Service Power Sells Denver Gas Utility

Cities Service Power & Light Co. last month sold through underwriters to the public its entire interest in the Public Service Co. of Colorado, 875,000 shares of $20 par value common stock, at $25 a share.

Sale of the utility properties followed an SEC's divestment order of August 17 under the geographic integration clauses of the holding company act.

Cities Service Power & Light would apply the $20,452,125 net proceeds to the partial retirement of its $41,983,000 outstanding debentures, due 1949 and 1952, at prices not to exceed principal amount.

Metropolitan Life Publishes Postwar Planning Study

Policyholders' Service Bureau of the Metropolitan Life Insurance Co. has issued as the first of a series of projected reports on the subject of postwar planning, a study entitled, "An Introduction to Postwar Planning."

Based on material developed from some 50 selected companies that have already inaugurated postwar planning programs, the survey has uncovered two distinct types of thinking: (1) the scope of postwar planning should be arbitrarily limited—generally to the fields of product development and market research; (2) a number of companies look upon postwar planning as an opportunity to analyze and appraise all classes of the company's operations in terms of estimated postwar conditions. The scope of such activities is virtually unlimited.

Each postwar program must be based primarily on the problems to be met. While it is not possible to anticipate all such problems, the report endeavors to identify some of the major ones under such general functional headings as: Products, Markets, Distribution, Finance, Facilities, Personnel and Inventories. The report is available to executives who request it on business stationery. Address: Policyholders Service Bureau, Metropolitan Life Insurance Company, One Madison Avenue, New York 10, N. Y.

■ ■

Plans Made to Eliminate Turner Valley Wastage

A plan to eliminate annual wastage of millions of cu. ft. of gas in the Turner Valley oil fields in the Canadian province of Alberta has been submitted to the Petroleum and Natural Gas Conservation Board of Calgary, Alberta, by Thomas R. Weymouth, consultant to the United States government on gas conservation. Under the plan suggested by Mr. Weymouth, who made a survey of Turner Valley fields last spring, 95% of the gas produced in the valley would either be sold to gas consumers or forced back into the formation through old wells in the "gas gap" area.

Mr. Weymouth's report to the Calgary board says that of a total estimated reserve of 402,200,000,000 cu. ft. of dry gas which might be recovered from the Turner Valley fields, only 223,100,000,000 could be secured under the prevailing method of operation. His report adds that 119,100,000,000 cu. ft. would be dissipated in flares or otherwise.

■ ■

New Jersey Utility Adds Gas Plant Capacity

In order to meet the increased demand for gas used in its large industrial area, Public Service Electric and Gas Co. of Newark, N. J., is making additions to its Harrison, N. J., plant, which is one of the largest carbureted water gas plants in this country.

The production capacity of this plant will be increased through the installation of an automatically operated, self-clinkering, U. G. I. Model "D" mechanical generator carbureted water gas apparatus, waste heat boiler, blower unit and extension to the present generator house, foundations and fuel handling equipment.

Internal Cleaning of Gas Lines

Fig. 1. The squeegees, developed by D. K. Stephens, are examined by (left to right): W. K. Sanders, pipeline dept.; F. J. McElhatton, supt. communications; J. J. Tipton, div. supt., all with Panhandle Eastern.

PANHANDLE Eastern Pipe Line Co., Kansas City, Mo., has cleaned and is in the process of cleaning major sections of its pipe line system. The rehabilitation program entails the cleaning of 68 miles of 24-in. pipe in Indiana; of 18 miles of 24-in. pipe in Ohio; of 85 miles of 26-in. pipe in Kansas; of 32 miles of 26-in. pipe in Oklahoma.

The cleaning process centers around the rubber squeegees shown in Fig. 1, which were developed by D. K. Stephens, superintendent of transmission pipe lines for Panhandle Eastern. The squeegees were furnished by Gates Rubber Co., Denver, Colo. According to Stephens, the rubber is holding up very well, and it is estimated that one rubber in each eight-mile section would be expended in the cleaning process.

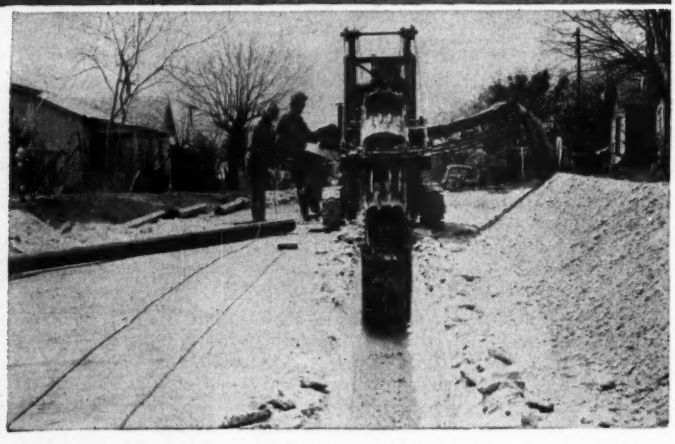
The procedure in cleaning the line is as follows:

First the squeegees are placed in the line 45 ft. apart with a go-devil (Fig. 2) attached to the front squeegee by a swivel. Then approximately 850 gal. of water containing ½ of 1% of Aero-

BEFORE THE WAR—FOR THE DURATION—AFTER THE VICTORY

"CLEVELANDS"—WERE—ARE—AND WILL BE

Preferred Equipment For Trench Excavation



BECAUSE: No matter where they have been in service, whether on civilian pipe line jobs, on long main lines and distribution trench, or on many various war time ditching projects for the United States Government, they have delivered maximum performance at minimum operating costs day in and day out.

"CLEVELANDS" have set up these high performance records, because correct design and construction of the finest materials procurable, give them power, speed, and ruggedness to carry them through the toughest going in all types of soil and over the roughest terrain. No matter what your trenching or ditching job, you'll be glad you put a CLEVELAND on the line.

THE CLEVELAND TRENCHER COMPANY

20100 ST. CLAIR AVE. *"Pioneer of the Small Trencher"* CLEVELAND, OHIO

"CLEVELANDS" Save More . . . Because they Do More

sol O. T. 100% is pumped through a hole in the top of the line into the section between the two squeegees, where it remains.

As the cleaning device travels through the line, the go-devil revolves in the liquid, perfecting the cleaning

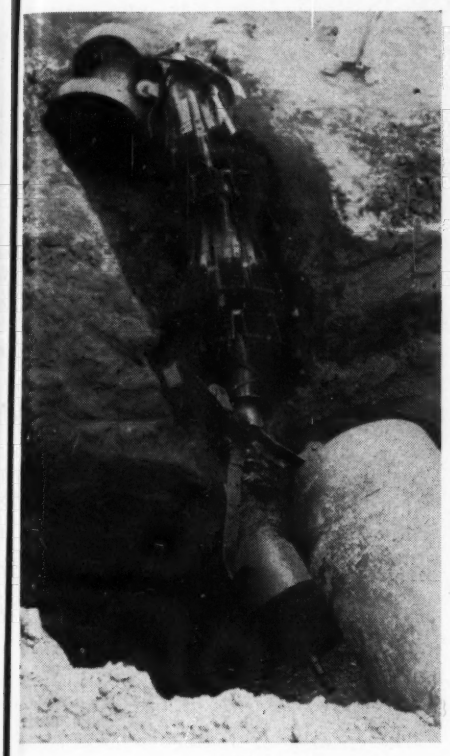


FIG. 2. Go-devil, which is attached by swivel to the leading squeegee in the cleaning set-up.

job. The cleaning set-up is run through the line, using some 7 to 8 lb. pressure, the speed being controlled between 15 and 20 miles per hour. Following the run, samples are taken of the water.

It should be noted that the go-devil was used only in connection with the cleaning of the line that had been in the ground for some time. In cleaning new line not yet brought into service, the go-devil was omitted. Approximately eight miles of pipe are cleaned at one time.

Following the first run, the performance with the squeeges and the Aerosol fluid is repeated with the go-devil. Samples are again taken of the water, a third run is then made, using a single unit of the squeeges, and following this very little fluid remained in the line. The line was then given a three to five-minute blow or whatever was necessary to clean it up.

Centrifuge tests of the samples show from 35 to 23% solids on the first run and from 10 to 1.9½ solids on

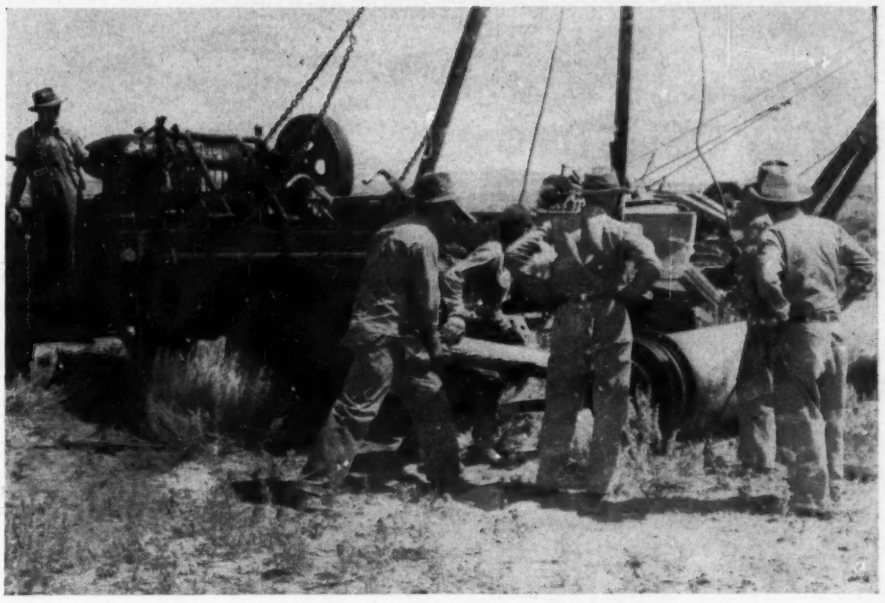


FIG. 3. Crew forcing one of the squeegees into the line.

the second run. It was considered that another run with just water would produce a small amount of additional solids, but it was not thought that this procedure would increase the efficiency of the lines any more than the previous runs.

When Mr. Stephens got the idea for this type of cleaning he asked the American Cyanamide and Chemical Co., 30 Rockefeller Plaza, New York, to make tests for a chemical product which would not be injurious to pipe line metal and which could be used as an agent for cleaning. The product required for the job was Aerosol O. T. 100% pure. Through the use of this product, the line is cleaned of dirt sand, mill scale, iron oxide, oil and other products. After cleaning one section of the line, it was indicated that the flow efficiency of the line had been increased about 4 or 5%. Details on blowing and cleaning the new Liberal loop between Greensburg and Gate 208 are as follows:

Each section was given a good blow, then 900 gal. of Aerosol fluid were run through the line, followed by 1000 gal. of water, after which a dry plug was run and the line given a final blow. On the section between 208 and 209 a third run was made with fluid, using 1000 gal. of water.

The solids in the fluid were found to be 25%, 27%, and 27% in the initial run of each section and 1.2% to 4.3% on the second run of each section. The third run on the last section showed 1.1% solid. The analysis of these solids in the samples were mostly sand, dirt and iron oxide.

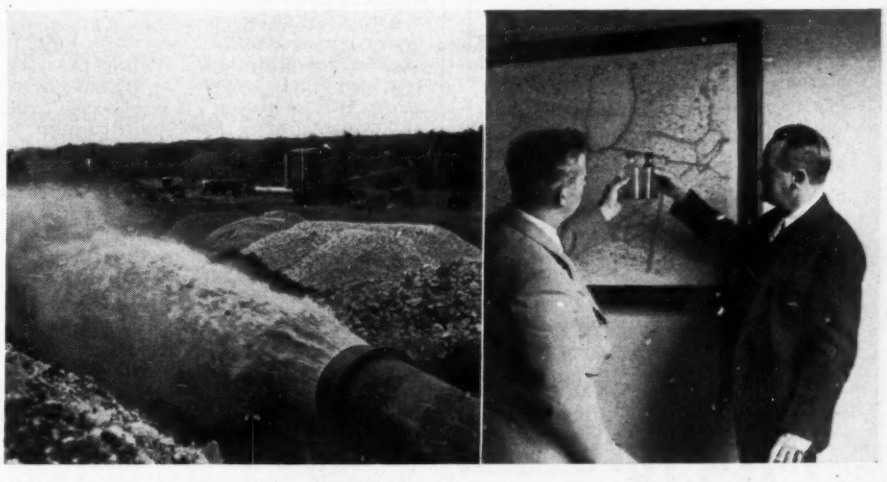


FIG. 4. (At left): Shows the liquid being ejected from the line under pressure. The plugs, not shown, have been thrown a distance of from 50 to 75 ft. by the pressure. (At right): D. K. Stephens, superintendent of transmission lines, and George Koch, superintendent of compressor stations, examine samples of sediment taken from the line.

P. C. G. A.
Co-operative
ADVERTISING
Now completing

15th
YEAR

In 1929, western gas companies launched the regional cooperative campaign that has continued ever since. Supervising committees have directed the production of:

- MORE THAN 700 SEPARATE ADVERTISEMENTS FOR PACIFIC COAST TRADE AND BUSINESS JOURNALS.
- OVER 150 ADVERTISEMENTS (MOSTLY FULL PAGES, MANY IN COLOR) FOR REGIONAL DOMESTIC MAGAZINES.
- APPROXIMATELY 2,000 TECHNICAL ARTICLES AND NEWS ITEMS RELATING TO GAS UTILIZATION, ACTUALLY PRINTED.
- OTHER MATERIALS AND PROGRAMS TOO NUMEROUS TO LIST HERE.

Few, if any, trade associations in the United States can cite a cooperative advertising record so thorough, so consistent. It is a testimonial, we feel, to the stability of the Association, and its members' friendly spirit of mutual helpfulness. ★ Unquestionably, too, it has been a major factor in building load when load was needed, as well as the *good will* that's *always* needed.

THE PACIFIC COAST
GAS ASSOCIATION

GAS FUEL

SERVING THE WEST
IN WAR AND PEACE

Rules Set for Potentials In West Cement Field

Specific rules for taking potentials of gas wells in the miscellaneous sands of the West Cement gas field were formulated by the Oklahoma Corporation Commission, in an order dated November 1, 1943.

For several years potentials have been taken pursuant to general orders of the Commission but no specific rules had been adopted. The Commission finds that, in order to carry out the laws of Oklahoma requiring ratable taking of gas, it is necessary to establish a uniform method for determining the ability of each well in the sands to produce.

In determining the "Potential Factor," the order states that "The natural flow potential shall be that volume of gas capable of being produced in a 24-hour period, measured at standard conditions of 60° F. temperature, and at 4-oz. pressure above atmospheric pressure, assumed to be 14.4 lb. per sq. in. pressure, or at 14.65 lb. per sq. in. pressure absolute, and with atmospheric pressure at the sand face as provided by the Bureau of Mines Monograph Seven back pressure method, corrected to such volume as 7-in. outside diameter 24-lb. casing will deliver at the well head against atmospheric pressure."

The order also sets out a formula for determining the absolute open flow of each connected well in the field. The order requires that potentials shall be taken on all wells at least once a year and that reports shall be placed on file with the conservation department of the Commission. No well shall produce more than 25% of its potential as shown by such tests.

■ ■

Government Housing Project To Heat Homes With Gas

For the first time since March 1, 1942, new homes constructed under a government housing program in Southern California will be permitted to use gas for heating.

According to information received by General Manager A. F. Bridge, Southern Counties Gas Co., Los Angeles, the natural gas division of the war production board has agreed, in view of the critical oil shortage, to allow gas heat in several thousand units to be constructed shortly.

A total of 28,000 new homes are either under construction or are to be built in the metropolitan area within the next few months to relieve the housing situation, Bridge states. Of the 28,000, some 14,000 units are under construction or now approved and will be heated by oil. Of the remaining 14,000 units, it is expected at least 10,000 will be heated by gas. As in the past, gas probably will be specified for cooking and water heating in the large majority of the 28,000 units.

■ ■

Will Help Build Giant Aircraft Carrier

Gas will play an important role in the construction of the navy's newest, most formidable threat to the Japs—the 45,000-ton, super-armed, "unsinkable" giant aircraft carrier, to be built at Brooklyn Navy Yard. The Brooklyn Union Gas Co. will supply all the gas, and while the amount to be used is a navy secret, it is estimated that the construction of the mammoth carrier will require at least as much gas as was used in the building of the 35,000-ton battleship, North Carolina, and that was estimated at 40,000,000 cu. ft.

■ ■

Mid-Continent Oil and Gas Association Elects Officers

Frank Porter, Fain-Porter Drilling Co., Oklahoma City, Okla., at a meeting in Tulsa, Okla., November 30, was elected president of the Kansas-Oklahoma division of the Mid-Continent Oil and Gas Association. He succeeds the late Burdette Blue of Tulsa.

Lloyd G. Owen, Carter Oil Co., was renamed first vice president. Other officers included: E. B. Shawyer, Wichita, Kan., vice president for western Kansas; Carl Weiner, Chanute, vice president for eastern Kansas; A. W. Ambrose, Cities Service Oil Co., Bartlesville, re-elected vice president for northern Oklahoma; Lloyd Noble, Noble Drilling Co., Ardmore, vice president for southern California; W. R. Wallace, Magnolia Petroleum Co., Oklahoma City, vice president for western Oklahoma. Clarel H. Mapes, Tulsa, was re-elected secretary-treasurer.

Resolutions were voted: First, memorializing congress to "take appropriate action to amend the existing price control statutes so as to insure a proper and adequate price for crude oil and its products"; second, requesting the war manpower commission to recognize equipment as also essential to the war effort.

■ ■

Cooper-Bessemer Opens Third West Coast Office

The opening of another Pacific coast factory branch office has been announced by officials of the Cooper-Bessemer Corp., whose plants at Mount Vernon, Ohio, and Grove City, Pa., have recently added a gold star to their maritime pennant for continued outstanding production.

The new office, located at 401 Russ Building, San Francisco, is the third of three branches serving the west coast area. The other two offices have long been established at Los Angeles and Seattle.

The San Francisco office, under the supervision of service representative John G. McKissick, will facilitate the installation and maintenance of Cooper-Bessemer diesel engines in army and navy vessels constructed in the northern California territory.

■ ■

New Home Service Set-Up For Pittsburgh Gas Co.

Pittsburgh's Equitable Gas Co. on December 1 moved its home service headquarters to 439 Sixth Ave. New set-up for home service director, Kathryn Barnes, and staff, consists of an office and demonstration kitchen.

Staff gives information on food handling, party suggestions, handling of gas stoves or refrigerators by 'phone or in person. Recipes (16 tested) are sent monthly to a mailing list. Staff is available to women's clubs, church groups, other organizations comprising 50 or more people.

Miss Barnes joined the Equitable Gas Co. in March; was graduated from State Teachers' College, Buffalo, N. Y.

Your TITAN CONTROLS *are fighting in the air–*

We want you to know why there are not enough Titan Controls to satisfy the demand of America's home owners—we are helping to keep the Axis in "hot water." (The uncomfortable kind.)

Since Pearl Harbor we have been busy day and night making units for the hydraulic systems and the motors of planes, swivel mounts for guns, and parts for the air-conditioning equipment for tanks.

Into these wartime products are going the critical skills that formerly built Titan Controls. Into their fabrication we are pouring all the precision craftsmanship that formerly gave to Titan Controls a high degree of dependability.

When Victory comes and millons of our men return to their homes, Titan controls will again be on the job, doing their part to assure the hot water (the comfortable kind) to which the American home is accustomed.

THE TITAN VALVE & MFG. CO. • 9913 ELK AVENUE • CLEVELAND, OHIO

Titan Controls

BUY WAR BONDS

PEOPLE

Ernest R. Acker, president of the American Gas Association, has announced the appointment of **J. French Robinson,** president of the East Ohio Gas Co., Cleveland, as chairman of the association's vital committee on war activities. Robinson, a vice president of the association, succeeds Acker as head of this committee whose function is to coordinate the gas industry's war effort.

J. French Robinson

He is well qualified to fill this post as he has been in close touch with governmental agencies in several official capacities, being a member of the Petroleum Industry War Council and general chairman of the Natural Gas and Natural Gasoline Committee under PAW district No. 1. He served as chairman of the Natural Gas Section, AGA, in 1941-1942.

•

R. A. Schoenfeld, vice president and sales manager of Wheelco Instruments Co., Chicago, has announced several recent additions to the company's sales and service organization.

New England representation has been strengthened by appointment of the Cochrane Steam Specialty Co., Boston, to serve with **George W. Hall,** the company's present representative. The Cochrane organization and Hall now serve Massachusetts, Rhode Island, Maine, New Hampshire, Vermont and parts of Connecticut east of the Connecticut river.

C. L. Clark, formerly attached to the company's Cleveland office, has been placed in charge of a western New York office in Buffalo. **Charles D. Mount** has been named sales and service representative for southern Ohio and northern Kentucky, making his headquarters in Cincinnati, while **H. E. Holling** has been appointed northwestern Illinois representative with headquarters in Peoria.

The Lang Co., Salt Lake City, has been appointed sales and service representative in Utah, Idaho, Wyoming and Nevada.

•

Effective Nov. 26, **Jack Manildi** has been appointed manager of sales of Pacific Tube Co., whose plant in East Los Angeles is the first steel tube mill west of the Rocky mountains.

Manildi is a native of California, born in Santa Cruz, and is a graduate of Pomona College. He has spent most of his business years in Southern California, having come to Pacific Tube Co. after 10 years in the oil industry, as a sales representative with Oil Well Supply Co., and previously with General Petroleum Corp.

Pacific Tube Co., in recognition of this background, offers his services to the war effort, providing an emergency source of precision aircraft, mechanical and pressure tubing on the West Coast for requirements of the armed services, the aircraft manufacturers, lend-lease, the synthetic rubber and high octane programs. Post-war application of such products for the Pacific Coast will interest manufacturers of furniture, radios, refrigerators, bicycles and other users of high quality tubing.

•

An appointment which marks the rounding out of 30 years in the advertising field, principally in public utility and home appliance accounts, has been given to **Albert W. Humm,** who was last month elected a vice president of Hixson-O'Donnell Advertising, Inc., New York.

Humm has originated many productive sales promotion and advertising campaigns for manufacturing and utility concerns. He was formerly advertising and sales promotion manager of Standard Gas Equipment Corp., was active in the work of the American Gas Association, and in previous advertising agency connections created and placed national campaigns for gas appliance, gas eqiupment and gas refrigerator manufacturers.

•

Appointment of **William M. Averill** of Corpus Christi, Tex., as director in charge of PAW's District 3 (southwest) was announced November 18 by Petroleum Administrator for War Harold L. Ickes.

He succeeds **D. E. Buchanan** who resigned to return to his post as vice president of Hanlon-Buchanan, Inc., of Tulsa, Okla.

Since 1920 the new district director has been engaged primarily in oil transportation. From 1920 until 1937 he was vice president in charge of transportation facilities for the Pure Oil Co. of Beaumont, Tex. In 1937 he became president of the Amsco Pipe Line Co. of Corpus Christi. Four years later he formed his own oil producing company.

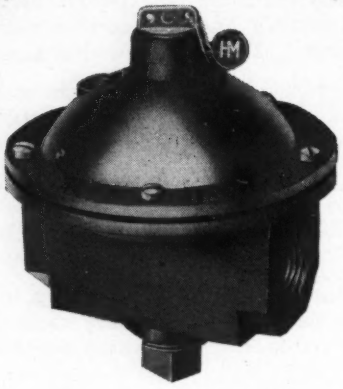
Averill continued as an independent oil producer until May, 1942, when the PAW requested him to become director of transportation for the southwest states (PAW District 3). He held this position until June, 1943, when he resigned to return to his company.

•

Robert J. Canniff of Evansville, Ind., sales promotion and advertising manager for Servel, Inc., has been elected vice president of the National Noise Abatement Council, it was recently an-

SOLVES YOUR PRESSURE PROBLEM

REGULATES AND CONTROLS YOUR GAS FLOW



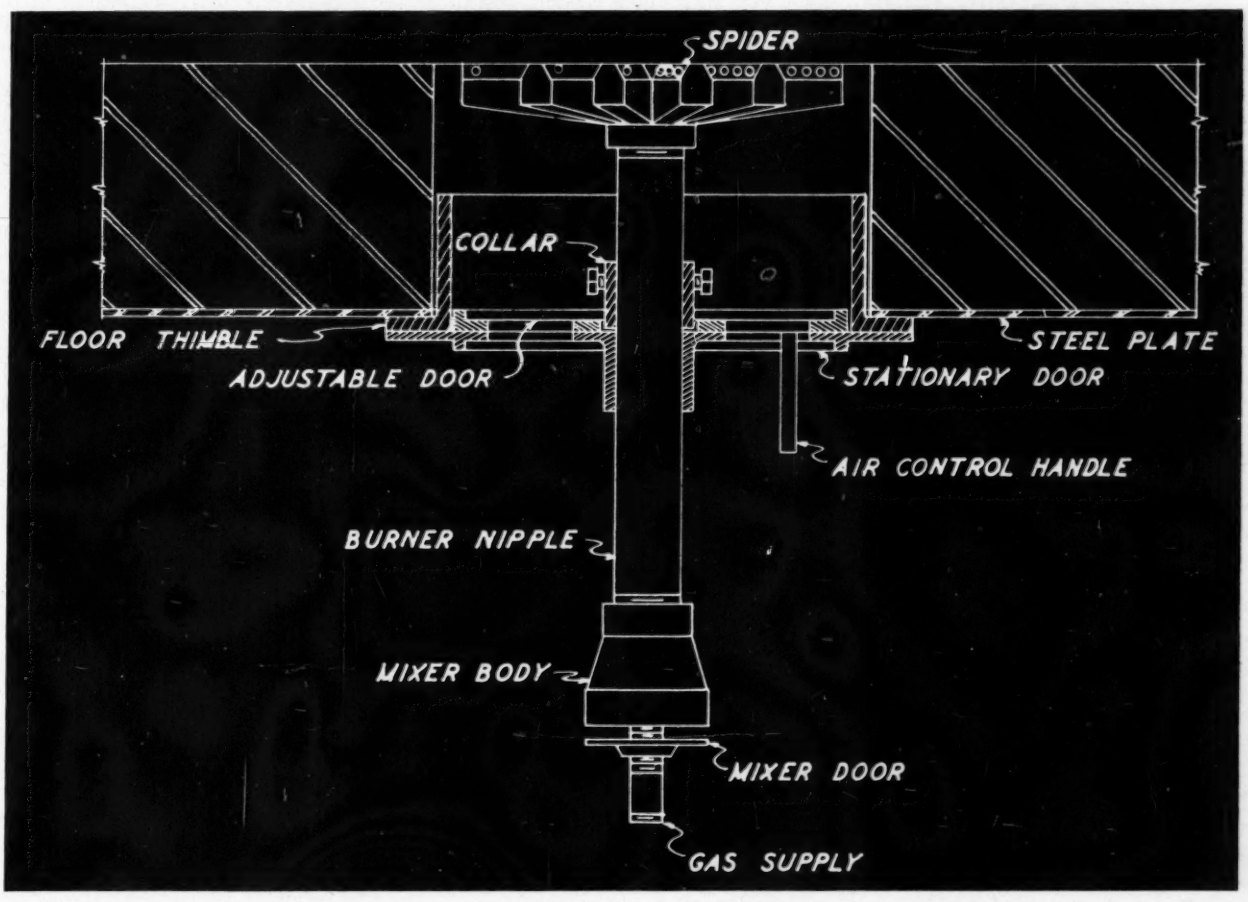
SIZES FROM ⅜ IN. TO 2 INCHES

TROUBLE FREE DEPENDABLE

SAVES LABOR SAVES MONEY

H-M REGULATOR COMPANY
THERMO CONTROL CO.
800 EAST 108 STREET • LOS ANGELES, CALIFORNIA

John Zink BI-MIX BURNER for Floor Firing!



JOHN ZINK VBM - GAS TYPE BURNER

The John Zink VBM - Gas Type Burner fires a furnace to a higher rating—more evenly—than any other way possible.

It burns with an extremely short flame.

Performs well with extremely low draft.

Its special construction makes for better distribution of air for combustion.

In large sizes the VBM can be used for access door—for inspection of furnace.

Sizes: 14", 16", 18" and 20" diameters.

The John Zink Burners MTH or MTB are inserted through center of the spider, to make the John Zink VBM - Combination Type Burner.

WRITE FOR SPECIFICATIONS

JOHN ZINK COMPANY

Tulsa, Oklahoma

NEW YORK • LOS ANGELES • DETROIT • SAN FRANCISCO

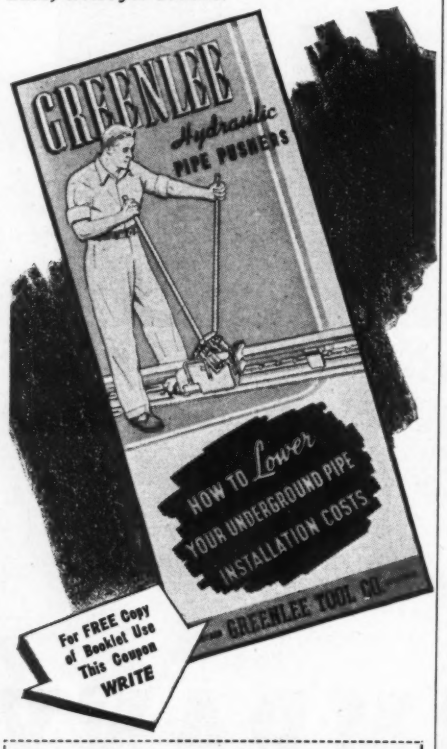
Simplifies UNDERGROUND PIPE INSTALLATIONS...

Eliminates Street and Road Excavations

Fast — Easy Powerful Portable

GREENLEE PUSHERS SAVE VITAL HOURS

On the home front, and today with our fighting forces, the smooth, easy performance of Greenlee Pushers relieve physical strain on workmen and save vital hours of labor. Being faster on the job, and in most cases eliminating street and road excavations, they, in effect, create extra manpower — make construction dollars go farther. When used with the Greenlee Power Pump, extra speed and extra saving is effected . . . one man can operate. *For additional facts, figures, and performance data, write for booklet.*


GREENLEE
Hydraulic
PIPE PUSHERS
HOW TO Lower YOUR UNDERGROUND PIPE INSTALLATION COSTS
GREENLEE TOOL CO.
For FREE Copy of Booklet Use This Coupon WRITE

GREENLEE TOOL CO.
1952 Columbia Avenue,
ROCKFORD, ILLINOIS

Please send full facts on Greenlee Pushers. Want details for ☐ early consideration ☐ post-war plans.

Name.....

Address.....

City.....*State*.....

nounced by **S. L. Hooper** of Washington, D. C., president of the organization.

In reporting Canniff's election at the annual meeting held in the New York Advertising Club, Hooper said that 42 local councils throughout the United States are conducting wartime programs to stimulate interest in reducing needless noise in factory, home, office and street, and particularly in war production industrial areas where nightshift workers sleep days.

•

William G. Maguire, president of Missouri-Kansas Pipe Line Co., is chairman of the new Panhandle Eastern Pipe Line Co.'s board, and its senior member. His participation in Panhandle Eastern affairs dates from 1930, at the time construction of the Panhandle system was started. He was a director from 1930 to 1932, rejoining the board in 1937. He is chief executive officer.

Maguire was born in Illinois, and his business life has been devoted exclusively to coal, iron, steel, public utility and related enterprises. New Panhandle president is **Edward Buddrus.** Other members of Panhandle Eastern's new directorate, in addition to Maguire and Buddrus, are **Kenneth S. Adams,** Bartlesville; **John E. Bierwith,** New York; **Robert J. Bulkley,** Cleveland; **Don Emery,** Bartlesville; **Hubert E. Howard,** Chicago; Judge **Ira Lloyd Letts,** Providence, and **Frank J. Lewis,** Chicago.

Hy Byrd, formerly with Phillips, is vice president and treasurer; **Leith V. Watkins** continues as secretary and controller. Their offices are at Chicago; the New York office has been closed.

Other officers include two Panhandle Eastern veterans recently advanced to vice presidents: **J. C. Reinbold,** general superintendent, and **C. H. M. Burnham,** chief engineer, Kansas City, Mo.; **Robert D. Field,** Amarillo; Judge **Letts,** general counsel; **Norman F. Paxton,** assistant secretary and assistant treasurer; **Lawrence J. Mueller,** assistant secretary, and **Charles D. Jellings,** assistant treasurer.

•

The appointment of **George A. Wilson** to the position of director of the transportation division was announced Nov. 26 by the Petroleum Administration for War. He succeeds **J. R. Parten,** who has resigned to return to private business.

On leave from Standard Oil Co. of Louisiana, where he headed the production, pipeline and crude oil law department at Shreveport, Wilson joined the Petroleum Administration in April, 1942, as Major Parten's assistant.

•

L. M. Ayers, industrial relations manager of the Peoples Natural Gas Co., Hope Natural Gas Co., and the East Ohio Gas Co., has been appointed chairman of the Personnel Committee of the American Gas Association, it has been announced by **Ernest R. Acker,** AGA president.

The Personnel Committee is now in its eighth year as an association activity and is engaged in a continuing study of the industrial relations problems of the gas industry. At present it is devoting particular attention to methods of alleviating the manpower shortage and contributing to the effective prosecution of the war.

The new committee chairman is a recognized authority on industrial relations. He is a native of West Virgina and received his education in Teachers Training School. In 1913 he became an oil and gas leaser in West Virginia for the Greensboro Gas Co., later acquired by the Columbia Gas & Electric Corp.

Subsequently, Ayers was employed by the South Penn Oil Co. in 1916, the Guffey Gillespie Oil Co., Tulsa, Okla., in 1920, and the Carter Oil Co., Tulsa, in 1921. He was transferred to Pittsburgh, Pa., in February, 1926, and appointed to his present position.

•

New president of the Columbia Gas & Electric Corp. is **Stuart M. Crocker.** He was elected by the board of directors at a recent meeting and resigned as vice-president of the General Electric Co. to assume his new office.

Crocker succeeds Edward Reynolds, who retired to devote full time to his duties as administrative head of the supply division, office of the surgeon general of the army, which position he has occupied since November, 1942, under leave of absence from the corporation.

The incoming executive, who is only 45 years of age, was graduated from Harvard in 1921 and served with the Radio Corp. of America until 1922, when joining General Electric as assistant to Owen D. Young, chairman of the board. Mr. Crocker was elected vice-president of that organization in 1940.

The United Gas Improvement Co. announces the following changes in the officers of the company:

Johns Hopkins was elected treasurer to succeed **I. W. Morris** who resigned after more than 49 years of service with the company. Hopkins continues as secretary. **Albert S. Corson** was elected a vice-president and **Ernest W. Windle** was appointed assistant to the president.

George J. Banse was appointed to succeed Mr. Corson as general auditor.

E. J. Meade, vice-president of Atlanta Gas Light Co. and Florida Public Utilities Co., was advanced recently to the position of operating vice-president.

At the same time **D. A. Crawford,** president of Roanoke Gas Light Co. and associated public utility companies operating in Virginia and Tennessee, was elected vice president of Atlanta Gas Light Co. and Florida Public Utilities Co.

•

Pittsburgh Equitable Meter Co. in Pittsburgh has named **Edgar W. Myers, Jr.,** comptroller of the company and its subsidiaries: Merco Nordstrom Valve Co. of Oakland, Calif., and H. A. Smith Machine Co. of Hopewell, N. J.

•

Ernest R. Acker, president of the American Gas Association, has announced the appointment of **E. N. Strait,** Public Utility Engineering and Service Corp., Chicago, as chairman of the rate committee of the AGA. This is the second time Strait has headed this important activity, having been made chairman in 1934.

The rate committee is made up of rate and valuation experts who meet regularly to consider developments affecting utility rates and related matters. From time to time in the past the committee has issued valuable reports on gas industry matters.

Strait's experience in public regulation of utilities and in private business has extended to various classes of public utility service. He is a graduate of

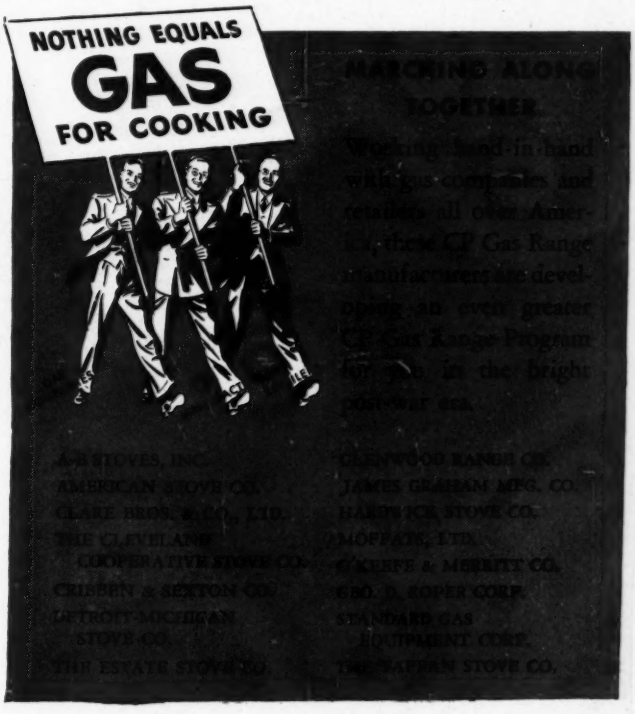
"Here's the FIRST THING we'll buy when Daddy comes marching home"

● First on your customers' buying lists after this war will be a new Gas Range. Every woman will tell you! Every market study proves it! And first on your customers' Range lists will be a CP Gas Range.

Gas Ranges bearing the CP Seal are the American woman's buying guide — the standard by which all other cooking appliances are judged. For these are the Gas Ranges that revolutionized cooking and gave women a new conception of time, food and money-saving cooking perfection. That's why, when the war is over, CP Gas Ranges again will pave the way for better business for you and greater sales of Gas — the ideal fuel.

20 Million Messages are Keeping 'Em Sold

In more than 20 million newspaper advertisements, gas utilities from coast-to-coast are urging American women to *Buy War Bonds Today for the CP Gas Range You Will Want Tomorrow* — helping keep Gas the Preferred Cooking fuel in the homes of 85 million Americans.



CP *The Gas Range of Tomorrow*

the "NERVE CENTER"
of your gas appliance
must be dependable

Dependability is emphasized at every step in the manufacture of DOMESTIC Thermostats.

Every safeguard that modern engineering science can provide is taken so that this unit will give faultless performance . . . plenty of hot water at the desired temperature *always*.

You can depend on . . .

Domestic

DOMESTIC
THERMOSTAT COMPANY
LOS ANGELES · CALIFORNIA

Holiday
Greetings
to Our Friends in
the Gas Industry

The makers of **Mettler Entrained Combustion Gas Burners** wish you a Merry Christmas and a Prosperous New Year

LEE B. METTLER CO.

LOS ANGELES 13 — JAMES M. KOBABE, President 406 South Main Street — CALIFORNIA

the University of Wisconsin with a B.S. degree in engineering and an electrical engineering degree in 1912. He has been connected with Public Utility Engineering and Service Corp. and its predecessor companies since 1916, during which time he has been in charge of rate and related matters.

•

To **Harry Kreisinger,** New York engineer, goes the Percy Nicholls award "for notable scientific or industrial achievement in the field of solid fuels," which was presented to him recently at the William Penn Hotel in Pittsburgh where the joint fuels conference of the fuels division, American Society of Mechanical Engineers, and the coal division, American Institute of Mining and Metallurgical Engineers, held their annual session. Kreisinger is manager of the development and research department, Combustion Engineering Co., Inc., New York.

•

Kathleen Robertson, household equipment editor of "McCall's Magazine," has enlisted in the Women's Army Corps of the United States army. Miss Robertson was inducted on November 18 into the WAC at New Haven, Conn., and is at Fort Oglethorpe, Ga., taking her basic training. Following this training, Miss Robertson will probably become an air WAC.

According to an announcement by Camille Davied, homemaking editor of "McCall's," Miss Robertson's duties as household equipment editor will be taken over by **Elizabeth Sweeney,** who is resigning as assistant professor of foods and nutrition, College of Home Economics, Syracuse University, to join the McCall editorial staff.

•

Lloyd L. Jordan has been appointed Arkansas member of the research and coordinating committee of the Interstate Oil Compact Commission by Governor **A. F. Schoeppel** of Kansas, chairman of the commission. He succeeds **Alec M. Crowell,** director of production, Arkansas Oil and Gas Commission. Crowell retains his membership on the engineering committee.

From employment with the Sinclair Prairie Oil Co., Jordan in 1933 went to the engineering staff of the Lion Oil Refining Co. at El Dorado and was assigned to natural gas work in the fields of Arkansas. In 1939 he joined the engineering staff of the Arkansas Oil and Gas Commission as natural gas engineer and was promoted to division engineer of the commission in 1942.

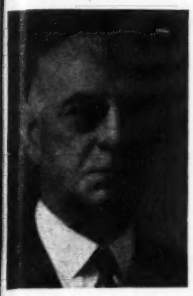
•

George F. Brenner, who has been treasurer, is now vice-president and secretary. He came with the company in 1925 as assistant treasurer. **William H. Zimmer,** formerly assistant secretary and assistant treasurer, has been elevated to the position of treasurer, and retains his position as assistant secretary. He joined the company in 1920 as a messenger boy.

•

Dr. Charles J. Potter, formerly assistant to the president of the Rochester & Pittsburgh Coal Co., Pittsburgh, has become affiliated with the bituminous fuel department in the Department of the Interior, Washington, D. C., replacing **Howard Gray.**

Marking a milestone in public utility leadership, **C. O. G. Miller,** chairman of the board of the Pacific Lighting Corp., early this month celebrated his 60th business anniversary. A native of San Francisco, Miller entered the offices of the United Gas Improvement Co. of that city in 1883, when he was a lad still in his 'teens. Out of this company developed the present Pacific Lighting Corp., of which Miller became president in 1900.



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Calvin A. Nichols, acting treasurer and controller of the American Meter Co., New York, has been elected to membership in the Controllers' Institute of America, a technical and professional organization of controllers devoted to improvement of controllership procedure.

•

Action taken by the Cincinnati Gas & Electric Co.'s board of directors at its last meeting advanced the following company executives: **A. C. Moorhaus,** vice-president, retains that position and becomes a member of the board. He joined the company in 1924 as purchasing agent, was appointed acting general manager in 1930, and was made vice-president in 1938.

•

Petroleum Administrator **Harold L. Ickes** November 22 announced the resignation of **Jubal R. Parten,** PAW's director of transportation.

Mr. Parten will resume his activities as president of the Woodley Petroleum Co. of Houston, Texas, and chairman of the board of the Premier Oil Refining Co. of Longview, Texas. His successor has not yet been designated.

•

Gerard J. Neuner, formerly vice-president of Panhandle Eastern Pipe Line Co., Kansas City, Mo., has announced the opening of offices for the general practice of law. His new office is located at Suite 1200, Waltower Building, Kansas City, Mo.

•

The United Gas Improvement Co. announced recently that **William M. Hickey,** president of the United Corp., had been elected a director of the company to fill a vacancy on the board.

Obituaries

H. J. Friedlander

Harry J. Friedlander, a member of the sales organization of the Geo. D. Roper Corp., Rockford, Ill., since 1932, passed away in Cleveland, Ohio, November 8 after a brief illness. He had been associated with W. J. Spencer in the Roper Distributing Co., handling the sales and service of Roper gas ranges in northern Ohio.

Born in Antwerp, Belgium, on April 6, 1879, Friedlander came to America, along with his family, as a refugee of the first world war.

Supervision of Roper activities in the northern Ohio area will be continued by W. J. Spencer.

•

James W. Dunbar

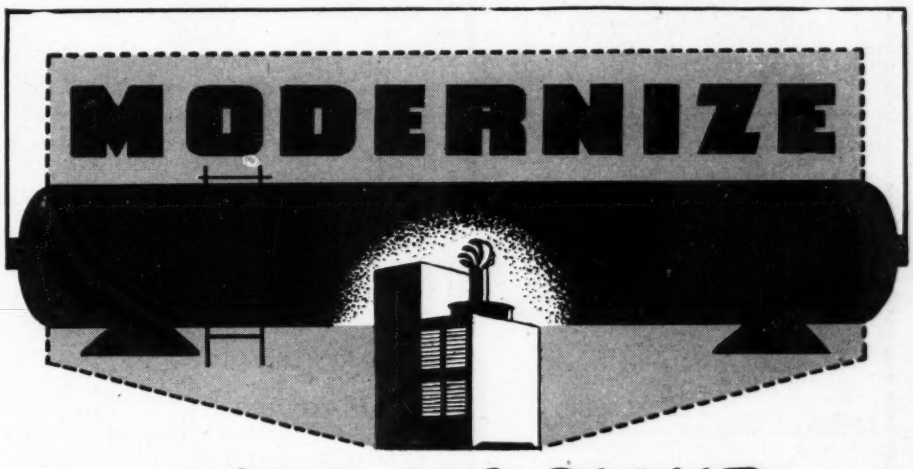
First secretary of the American Gas Institute and a charter member of the American Gas Association, James W. Dunbar died recently at his home in New Albany, Ind., after a short illness. He was 73 years old. Mr. Dunbar started his career by lighting New Albany's coal-oil lamps when he was 18 years old and rose to the position of assistant to the president of the former United Gas & Electric Co.

A supporter of Gas Association work for 59 years, Mr. Dunbar joined the old Western Gas Association in 1884 and later served as its secretary for many years. He also served three terms in the United States congress.

•

George G. Gebhart

After an illness of more than a year, George Grove Gebhart passed away during November at his home in Cleveland. Gebhart had been associated with the Hotstream Heater Co. as sales manager in Cleveland for over 20 years. Prominent in Masonic activities, Gebhart was a native of Dayton, Ohio, where he was born in 1886. He had been sales manager for manufacturing concerns there and at Mansfield before becoming affiliated with the Hotstream Hater Co.



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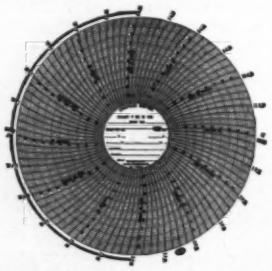

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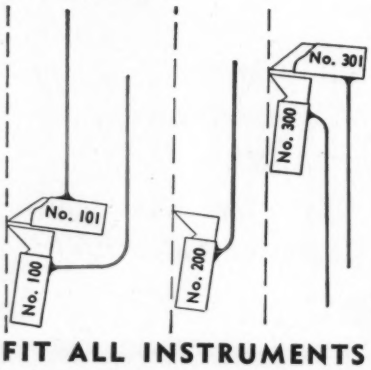

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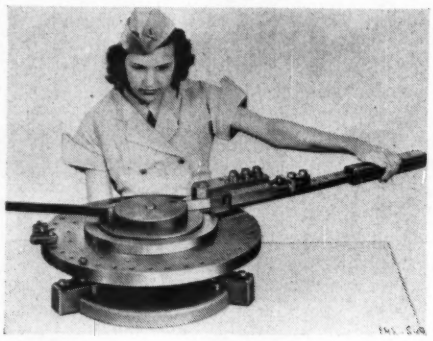
510 S. Lansing Ave., Tulsa 5, Okla.

PRODUCTS

Di-Acro Bender

O'Neil-Irwin Mfg. Co., Minneapolis, Minn.
Model: Di-Acro Bender No. 3.

Application: To answer the demand for a bender capable of forming greater diameters than is possible with smaller models, especially in aircraft and marine work.



Description: Incorporating all the features of the smaller model benders made by the same company, this new unit is heavier and more rugged throughout and has a considerably greater radius forming capacity. Accuracy is guaranteed to tolerance of .001 in. in all duplicated work. Bender has two-way action, right or left hand mounting or operating. Length of operating leverage is 35 in. Increased leverage in any amount necessary, up to a total of 80 in., may be readily added.

Capacity is ½-in. cold rolled steel bar, formed cold to 1-in. radii or larger. Greater capacity of more ductile materials in proportion. Net weight of unit is 215 lb. Heavy hold-down lugs securely fasten bender in any desired operating position. Heavy base castings are machine tool gray iron, and all contour and contact surfaces are properly hardened and heat treated cold rolled machine steel. Main bearing is steel against heat treated and hardened machine steel, adjustable for wear and alignment.

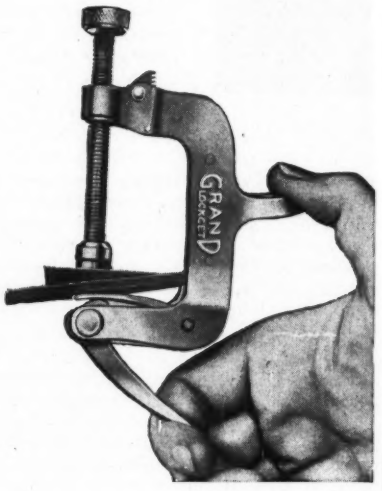
■ ■

Speed Clamps

Grand Specialties Co., Chicago, Ill.

Models: Quick Lockcet Clamp and Speed Clamp.

Application: The Quick Lockcet is designed for light, fast work, featuring an instantaneous trigger release. The Reavy Duty Speed Clamp is a new development for large, heavy work—welding heavy plate, building dies, bulky weldments, etc.



Quick Lockcet Clamp

Description: Quick Lockcet Clamp has swinging, locking lever, gib which is claimed to make it absolutely non-creeping and assures firm grip on any parallel, slanting or rounded surface. Release trigger is equipped with powerful teeth which, under spring tension, hold firm ratchet grip on screw. Grip can be released instantly with pressure on trigger by thumb or finger. This clamp has a free acting swivel with fiber face to prevent scarring, and may also be had with complete fiber jaws for work on aluminum and other softer metals.

Heavy Duty Speed Clamp

Heavy Duty Clamp is a two-handed, lever-operated clamp said to be ideal for production use on identical pieces. It is claimed that with combination screw and lever action the clamp can be set and locked for a given opening and instantly applied or released with single lever movement. Also available in "giant" size with 10½-in. opening.

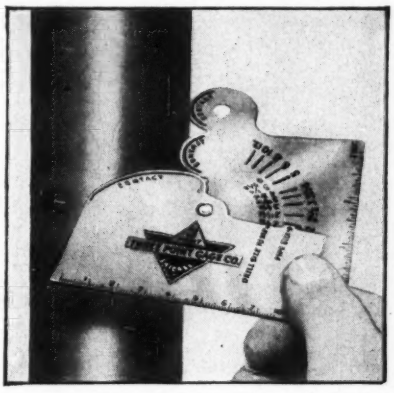
Three-Point Pipe Gage

Three-Point Gage Co., 3821 Broadway, Chicago, Ill.

Model: "Pocketsize" Three-Point Pipe Gage.

Application: For instantaneous measurement of all sizes of pipe from ⅛ in. to 12 in.

Description: Gage consists of two pivoted steel plates with edges curved at three points for contact with pipe to be measured. Also has scale which automatically registers not only pipe size in terms of inside diameter, but drill size for tapping. Manufacturer claims gage measures by determining outside arc of pipe at three points of contact, and that by placing two fixed contact



points of one plate against outer contour of pipe and sliding second (or movable) plate until it makes third contact, marker on face of gage will show accurately size of pipe and also correct drill size for tapping.

Additional advantage is that new gage makes it necessary to contact only a small section of pipe contour. It is said it will measure pipe in any position, even against wall or in a corner. Will also measure a covered pipe if there is a small opening near a union or other fitting where gage may be slipped in. Gage can be applied in dark places and then taken to light for reading. Unit is constructed of steel with deeply etched numerals. Size of gage when closed is 2½x4¼ in.

Catalogs

Leeds & Northrup Co., Philadelphia, Pa. has published a new edition of its catalog on Micromax Pneumatic Control, stressing use of this equipment for regulation of pH, conductivity and other conditions as well as temperature. This controller manipulates a diaphragm valve in order to maintain the regulation. Valve's opening is greater or smaller, depending on pressure in its air chamber. In Micromax control this air chamber is connected to control instrument by means of ordinary uncalibrated tubing or small piping.

Controller is described as employing a system of electrical and mechanical balances which detects, while they are very small, any departures from the control point and simultaneously changes air pressure to correct them. Micromax controller is described as completely factory assembled, ready to be connected to valve, thermocouple or other primary element. Ask for Catalog N-00B.

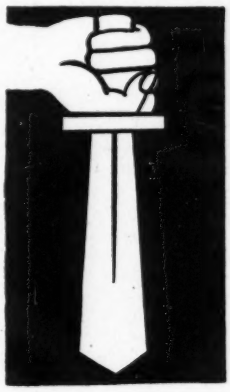
•

Ransome Machinery Co., Dunellen, N. J., has just issued Bulletin No. 196, describing its 2500-lb. capacity hand-operated welding positioner. This positioner, Model 25H, has an adjustable type base providing adjustment from 29½ in. to 47½ in. from floor line to table top. Clutch permits free hand rotation of table top, which is T-slotted to simplify clamping of work.

Table top is easily removed if so desired. Double Timken bearings are used on spindle shaft, and unit is compact and of sturdy construction.

•

The Blaw-Knox Co., Pittsburgh, Pa., has issued a 12-page Bulletin No. 1929 titled "Fine Separation with Tracyfiers" which illustrates and describes the application of Tracyfiers for steam lines, boilers, gas lines, chemical processes, gas cleaners and evaporators. The Blaw-Knox Tracyfier is said to be "the most thoroughly engineered separator on the market." Its sole function is to effect the most nearly complete separation of liquid from steam, air, gas or vapor.



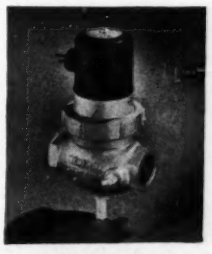
MOBILIZATION

FOR WAR AND PEACE

One of the outstanding features of the mobilization of industry for war production is the interchange of ideas and information among manufacturers. This pooling of vital information, unlocking the door to heretofore closely guarded "trade secrets," will help immeasurably to hasten the day of Victory. It will also contribute liberally to the improvement in construction and design of post-war products.

While concentrating on our job of turning out automatic controls for the engines of modern warfare, we are using specialized skills gained in working with new metals, new methods of fabrication. This knowledge will be used eventually to help raise the already high American standards of living and production efficiency to even greater heights.

GENERAL CONTROLS K-38 magnetic valve for controlling gas to heat-treating ovens, boilers, furnaces, industrial and domestic, and similar installations. Quiet, positive, trouble-free operation. Low in current consumption, either A.C. or D.C. Operating pressures up to 5 pounds. Available in sizes ⅜" to 6" I.P.S.



ABSTRACTS

Gas Chemists' Manual of Dry Box Purification of Gas—By Gilbert E. Seil. (American Gas Association, Inc., New York.) This 289-page volume is the first of its kind ever published, and may prove to be a landmark in gas engineering. It simply and thoroughly describes the chemistry and physics of gas purification. The principal fundamentals covered concern oxide purification, recent developments in the art of evaluating purifying materials, specifications, tests and other standards. In addition, the manual contains a reference bibliography which not only gives the author, title of the article, the date and place of publication, but a concise description of the contents of the article. $3.50 to AGA members, $5 to non-members.

•

Public Utility Valuation—The Issues at Stake and the Consequences, a symposium collection of articles by outstanding authorities on law, finance and business. (The Journal of Commerce and Commercial, 65 Park Row, New York 15, N. Y.) This 44-page journal presents facts dealing with the aboriginal cost basis of property valuation, and of many factors entering into the valuation of capital business investment. Discussing the trend toward socialized control implicit in the tendencies of federal and state regulatory bodies, the treatises get down to fundamental principles of free enterprise, the profit motive, and administrative action of government.

It is pointed out that the engineering and economic gains of the past half century would have been severely restricted had the industry continued upon the basis of many small local plants, the original cost valuation of which is taken to represent fair value for rate-making purposes.

Edited by Jules I. Bogen, the articles included in the symposium have been written by Dean Roscoe Pound of Harvard, Professor Thos. N. Carver of Harvard, Professor R. Commons of the University of Wisconsin, Professor W. D. Ennis of Stevens Institute of Technology, Dean John T. Madden of New York University, Dr. Henry E. Riggs, Dr. C. O. Ruggles, Dr. Gus W. Dyer, Dr. J. Rhoads Foster, Judge F. MacLane, A. J. G. Priest, R. C. Thurston, Jr., M. L. Sindeband, Francis S. Haberly, Luther R. Nash, Fowler Barker, Sherwin C. Badger, Owen Ely and Shelly Pierce.

The treatment is divided into three sections: **Principles of Utility Valuation, Utility Valuation in Practice,** and **Valuation Policy Effects,** and includes data and forecasts on postwar prospects for expansion in utilities service and appliance sales, as well as statistics on investment and income in the past, utility construction, cost of living in relation to cost of electricity, fluctuation of utility stocks, presented in the form of graphs. The symposium was published as a supplementary section to the July 26, 1943, issue of the Journal of Commerce and Commercial.

•

Wage Incentives for More Production—George S. May Business Foundation, 111 S. Dearborn St., Chicago. This comprehensive analysis of wage incentive plan is applicable to both wartime production and post-war business problems. It takes but 28 minutes to read and copies will be mailed without charge when requested on business letterhead.

•

Expense Control Will Save You $$ and **Practical Aspects of Supervisory Training**—George S. May Business Foundation, 111 S. Dearborn St., Chicago. Both these bulletins may be head free upon request.

•

You Can Do It Better With Gas—Dr. Gustav Egloff, director of research, University Oil Products Co., in the August, 1943, issue of Popular Mechanics. This article sets forth many of the untold merits of natural gas, describing its importance in the war-time economy and in the great research period that will be the post-war era.

•

Fightin' Oil—Harold L. Ickes, Petroleum Administtrator for War. In the words of the author, "'Fightin' Oil" has a modest but, I think, an extremely important mission—to clear up a few issues that seem to have too many people confused, and at the same time to give a bird's-eye view of the scope of oil's contribution to the winning of the war." This is a humanized story of oil which deals, too, with the present and future status of America as the leading oil producer of the world.

■ ■

Cooper-Bessemer Film Traces Company Growth

The new motion picture, "Continuous Performance," depicting progressive stages in research, engineering and production of Cooper-Bessemer compressors and diesel engines, had its first showing to an industrial group at the annual four-day meeting of the American Petroleum Institute at Chicago, in November.

The sound movie traces the progress of the company from its beginning 110 years ago to its present position as one of the nation's foremost builders of prime movers for oil and gas and other vital industries.

In addition to supplying gas and diesel engines and compressors for the oil and gas industry, Cooper-Bessemer is producing power units for the navy, army and other government departments in unprecedented volume.

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- High Pressure Line Regulators Pilot Loaded—Pilot Controlled
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- Seals: Dead Weight or Mercury
- Relief Valves: High or Low Pressure
- Back Pressure Valves. Automatic Quick-Closing Anti-Vacuum Valves
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GAS CONTROL SINCE 1892

Cities Service to Erect New Compressor Plant

Construction of a two-unit compressor station near Chillicothe, Texas, for Cities Service Gas Co. is now under way. The project was given government approval as the expansion was necessary to supplement natural gas service in the Wichita Falls district.

The new station when completed will assure the 300 lb. pressure required by a major customer at its pipe line takeoff from our main line and permit the transportation of more gas to customers in the Wichita Falls area farther down the line.

The station will include two 160 hp. vertical gas engines with directly connected compressors. The plant has been designed to handle 8400 Mcf. per day with a suction pressure of 178 lb. and discharge pressure of 300 lb.

Besides the main compressor building, an auxiliary building, plant garage and store room, and an employee dwelling are to be built.

Completion of the plant before the advent of winter's peak loads will assure the Wichita Falls district additional gas.

D. R. Pflug, assisted by A. J. Shoup, is in charge of construction. Sam Hester is welder and pipe foreman. Local labor is being utilized.

■ ■

WANTED—Water Heater Man

Thoroughly experienced water heater man wanted to take charge of water heater sales department. Attractive promotional water heating rate, in city with population 500 000—140,000 meters. When replying give complete detail information — experience, age, references, salary expected, etc. Write Box 225, c/o *GAS*, 1709 W. 8th St., Suite 320, Los Angeles 14, Calif.

New Gas Plant Built at Hamilton, Ontario

Financed by the Canadian government, a new $2,000,000 gas plant of 54 ovens was completed in November at Hamilton, Ontario. Union Gas and Fuel Co. is operating the plant, which took a year to build and which was made necessary in order to supply gas for Hamilton's war industries. Capacity production is 10,000,000 cu. ft. daily but T. Pates Pinckard, general manager of the company, says only half this amount will be utilized for a while. Construction of the new plant means that Hamilton now has available more than 20,000,000 cu. ft. of gas daily. In the event this output is not wholly taken by industries, more gas may be made available for domestic use.

To bolster the gas flow in order to meet winter demands, the company also received steady supplies of propane in October. Mr. Pinckard says that 150,000 gallons of propane were received in that month, filling the company's 225,000 gal. storage tank.

■ ■

Gas Demand From Oklahoma Field Increased

An increased demand for natural gas from the lower Charlson sand of the Chickasha, Okla., field for the month of December, 1943, was reflected in figures released by the Oklahoma Corporation Commission in an order of November 30.

Total allocation from that sand named in the order was 94,194,000 cu. ft. per day, an increase of 15,094,000 cu. ft. daily over December purchases.

Total amount of gas that may be produced from the Medrano sand of the West Cement field of Caddo County, Okla., for December, 1943, is 23,626,000 cu. ft. per day.

The order provides that if the market demand shall increase or decrease during the month new schedules will be issued by the commission. The allocations are made upon recommendation of the oil and gas conservation department and following a hearing before the commission, which was held November 30.

■ ■

Victory Garden Institute Honors Brooklyn Union

Conferring upo nthe Brooklyn Union Gas Co. its highest award, the National Victory Garden Institute has presented to the company a plaque which is being exhibited at all company offices, shops and works. Brooklyn Union's contribution to the program in enlisting its employees in the countrywide drive to produce more food was weighed against that of all other companies which reported on the Victory Gardening programs.

Judges were Richardson Wright, editor of House & Garden magazine; J. W. Johnston, horticultural editor of the New York Herald Tribune, and Carl F. Wedell, secretary of the Greater New York Victory Garden Council and head of the school of horticulture at the State Institute of Agriculture at Farmingdale, L. I.

Five Gas Subsidiaries Dropped by N. J. Standard

The Standard Oil Co. (N. J.) is disassociating itself from five natural gas companies it owned and they will hereafter be operated by the Consolidation Natural Gas Co. of New York, employees of the Hope Natural Gas Co. were recently told.

The Hope employees from six central West Virginia counties heard Frank H. Lerch, Jr., president of the newly formed consolidation, outline operation plans for the five companies which process natural gas in West Virginia, Pennsylvania, Ohio and New York.

The companies involved are the Hope; East Ohio Gas Co. of Cleveland, the River Gas Co. of Marietta, Ohio; the New York States Gas Co. of Pittsburgh, and the People's Natural Gas Co. of Pittsburgh.

All of them for years have been subsidiaries of Standard Oil, N. J. Hope's physical properties in West Virginia were assessed in West Virginia last year. There was no mention of the total value of the gas holdings of all the companies.

■ ■

Spokane Gas & Fuel Co. Gets Natural Gas Franchise

Addition of a clause to permit distribution of natural gas, as well as manufactured gas, in Spokane is a notable change in the Spokane Gas & Fuel Co. franchise renewed for 25 years in an ordinance given first and second readings by the city council.

F. A. Woodworth, president and general manager of the company, said possibility of using natural gas is considered, but added its use certainly will not begin until after the war. He commented that the original franchise, covering the period from June, 1904, to July, 1945, "while not specifically mentioning natural gas, did not exclude its use."

Provision for supplying gas for city street lamps is among the clauses eliminated from the franchise of 1904. Creation of a state public service department since the signing of the original agreement has made inclusion of certain restrictive clauses unnecessary, the corporation counsel's office announced.

The company will pay to the city 1% of gross sales annually.

■ ■

Southern Counties Gas Co. Serves New Industry

First of its kind to be erected on the Pacific Coast, the Alexander H. Kerr & Co. jar manufacturing plant at Santa Ana, Calif., is operating, in addition to a 70-ton gas-fired glass furnace, two annealing lehrs. Eventually the company expects to add three more lehrs, all gas-fired, bringing their daily gas consumption up to an estimated 1,000,000 cu. ft. Southern Counties Gas Co. serves this new industry through a 6-in. pipeline installed last May.

■ ■

Southern Union to Divest

The Southern Union Gas Co. of Dallas was granted until March 19, 1944, to divest itself of natural gas interest in the Quanah Water Co. by the Securities and Exchange Commission. The company has been disposing of certain properties under the death sentence section of the holding company act.